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GAS JOURNAL

LIGHT ✦ HEAT ✦ POWER ✦ BYE-PRODUCTS

[Founded in 1849 as the "Journal of Gas Lighting."]

VOL. CLXX. No. 3237.] LONDON, MAY 27, 1925. [77TH YEAR. PRICE 1s.

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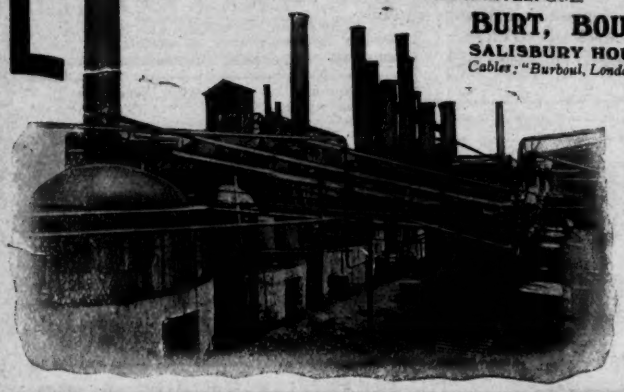

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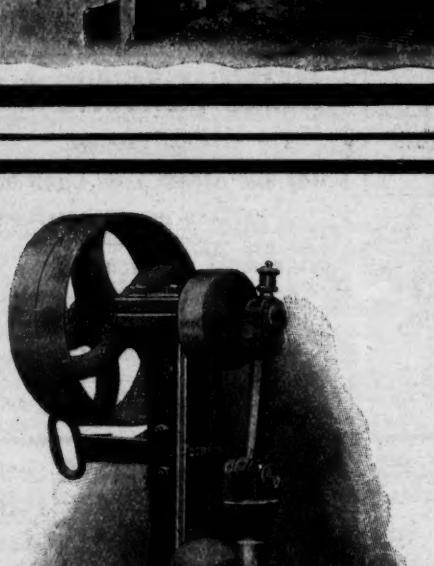

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VOL. CLXX., No. 3237.] WEDNESDAY, MAY 27, 1925. [77TH YEAR.

EDITORIAL NOTES.

Pricking the Bubbles.

THE bubbles by which the Government electricity development ideas are being supported have been pricked in a most effective manner by the President of the Society of British Gas Industries (Mr. D. Milne Watson, Governor of the Gas Light and Coke Company, and President of the National Gas Council). He performed this task in the Presidential Address which he delivered to the Society last Wednesday. Whether he has caused the bubbles to burst loudly enough to impress the Government cannot be said; but at any rate they cannot ignore the utterances of one who officially stands at the head of the organizations of the gas industry, and is the Governor of the largest gas undertaking in the world. It was a masterly, analytical, and statesmanlike deliverance; and as a criticism of the movement which is being politically engineered to render State-aid to the electricity industry —probably both in money and legislative influence— nothing has hitherto been done to equal it, nor have we yet seen any speech that has been made by any political leader in support of preferential legislative treatment of electricity which has shown a tithe of cogency constructively that this address presents destructively. The point, however, should be made clear that the gas industry does not want to stand in the way of any legitimate development of the electricity industry. But it does object to unusual facilities being granted to that industry to aid its development on pseudo-national grounds, which have been adopted politically through misconception and misleading, and which, while not improving matters nationally, would act detrimentally upon an industry doing equally important national work, though unrecognized by the powers-that-be who have been captured by the *ex parte* evidence of those electrically concerned. The trouble is that the final determination of this matter rests in the hands of politicians whom the Right Hon. Sir Alfred Mond (the new President of the Society of British Gas Industries) describes as "ignorant men on technical matters." We will not admit that the description entirely applies; but it does in the main to those who have been the loudest and most persistent among the advocates of the State taking electricity specially under its wing. And these are the people who (as Sir Alfred puts it) talk gaily about super-power stations, but who do not know the difference between a volt and an ampère, and who have never seen a dynamo. The critical address has come very opportunely; and it has been decided to carry out a suggestion of the new President to send a copy of it to the Prime Minister, the Minister of Transport, Mr. Lloyd George, Mr. Snowden, and other members of Parliament. Well-placed copies in municipal councils would also do good.

The whole matter, as Sir Arthur Duckham says, is of vital importance not only to the gas industry, but to the nation at large. It is so because the problem involved has been considered only from the point of view of an industry which in its very best practice shows an inefficiency of 80 p.ct., while consideration should have been given to the whole problem of the utilization of our fuel resources for the provision of power and heat. That is where a fundamental error has been made. At the present time, one does not know anything positive as to the character of the report that has been made to the Government by Lord Weir's Committee, or as to its recommendations. It would appear almost as though the report contains features that were unexpected by the Government. It was anticipated that a statement on their policy in the matter would have been made in the House last Thursday; but Lieut.-Col. Ashley, Minister of Transport, stated that the draft of the report was only received the previous Friday, and the complete report on Wednesday. He could not even say whether or not the report would be published. If it is not, it will seem very much as though there is something in it that the Government wish to hide. Being a national question, the nation have a right to be informed of all that there is to be known regarding it. Should, therefore, the Government not voluntarily publish the report, they should be pressed to do so until they yield, so that it may be discussed not only from those points of view that are convenient politically, but from those that are economically and technically important. However, whatever is in the report, the credulity of certain members of the Government will probably remain undisturbed. When speaking last Thursday, the Minister of Transport stated that, if the Government approached this matter from the national point of view, they could "hammer out" a scheme which would give a cheap and general supply of electricity. He added that, if this were done, he felt sure they would present to this country a weapon whereby it would be able more effectively to deal with foreign competition. The mischief of this sort of political scheming and talk is that we do not suppose Lieut.-Col. Ashley has a ghost of a notion of the extent to which any accruing difference in the cost of power would affect the competitive position. If he ascertained what proportion of works cost in any process of manufacture the item for power represents, we are sure he would not talk at random in the manner he does on this question. Neither do we believe he has any idea that the best practice of electricity shows only 20 p.ct. efficiency, and that under the national scheme it may easily be that more will be lost in distribution than is gained through another modicum of economy being derived from the fuel costs of electricity generation. How this is going to assist in putting this country in a better position competitively is a complete mystery; the chances are equally great that it will worsen our position in that respect, and weaken our internal security.

That the gas industry is entitled to the consideration of the Government when dealing with the question of the provision of power and (as they should be doing) heat, is clearly shown by some remarkable data presented by Mr. Milne Watson in his address. In Great Britain, the consumption of gas amounts to 275,000 million c.ft. annually, which is equal approximately to 1320 million therms. Taking the population at 47,350,000, the consumption of gas works out to 28 therms per head. The amount of electrical energy required to do the work actu-

ally performed by this quantity of gas, in its varied uses by the public, is calculated by the President at 487 KW.H., while the consumption of electricity in the country is only 139 units *per capita*. In the computation which brings out the equivalent figure of 487 KW.H., the President has been characteristically generous to electricity in the matter of efficiency in use. The figures should cause the Government to pause, and inquire into the actual reasons for their existence. Again, if the Government feel any responsibility in regard to the question of the conservation of our national fuel resources—before moving in the matter of promoting, on false premises, conditions to aid the development of the electricity industry other than by its own exertions and natural growth—they should take into account the position of the two industries in respect of the efficiency of the use of coal. It would be nothing less than a scandal that State funds should be employed to foster the inefficient use of coal, and so encourage waste of our resources. The address should make it quite clear to the Government and to members of Parliament generally that the problem of power and heat supplies in this country is being attacked from the wrong end. Furthermore, as Mr. Milne Watson points out, the grant of subsidies for the development of industries (particularly sheltered ones) is wrong in principle; and, inasmuch as the gas industry has paid for its own development, and occupies such a prominent place in the system and service of the country, it has a right to be heard on this matter, and to be furnished with the exact grounds on which the Government base their case for giving preferential consideration to a competing industry. The title of the industry to this information, and to be heard respecting any case that can be put forward, is accentuated by the fact that as a tax and rate payer it is an enormous contributor to national and local finances. If at all possible, therefore, the fullest satisfaction should be given by the Government that their proposals are right, and not economically and technically wrong. Anyway, if they will not pursue these suggested and just courses, then, if there is insistence by Parliament on subsidies being given to electricity, the claim of Mr. Milne Watson should be honoured, that subsidies should only be granted by way of loans, and in fairness to other industries loans should be allowed to them on like terms. But it would be much better that there should be no subsidies. As a matter of fact, the electrical industry is not in need of capital; and the dividends paid (far in excess of the controlled ones in the gas industry) show the ability of the industry to attract all the capital it requires.

The idea that this development of electricity will materially assist industry is proved by the address to be purely hypothetical, as witness the happenings on the north-east coast; and so is the idea that it will in any way improve employment. If by the aid of the public purse (to which the gas industry so heavily subscribes) electricity is cheapened for power purposes, and the ideas of the Government mature as to the lowering of the costs of industrial production (which we very much doubt), would it not follow that industry would prefer to adopt more extensively mechanical means in place of manual labour? The Labour Party have all through the piece been profoundly blind in this matter; and they have not even been aware of a fact which is put forward in the President's Address, and which should arrest their attention. It is that the gas industry employs more than five men for every one that electricity employs for the same amount of heat energy. The industry which labour should assist in developing is the one that offers the larger field for employment. But nationalization is in view; and the electricity industry appears to be an easy victim. To secure it—to satisfy a meretricious item of policy—is something, in the view of the Labour leaders, that is worthier of fervent work and blatant advocacy than the cause of employment. Electricity is not the solution of the unemployment problem; to say that it is, is nothing more than a political stunt and gross deception.

The members of the Society of British Gas Industries are as deeply concerned in this matter as the gas-supply industry; and they are as grateful to their President for his brilliant examination of the position and exposure of claims as will be those who have the responsibility upon them of guarding the interests of gas supply.

The Miners' Enlightenment.

Out of the bad conditions in the mining industry good may come in the enlightenment of the miners as to the destructive effects of the bad policy of the extremists in the past. The miners have been blindly following these leaders; and it is a shock to them to find that it has led them to a position at which this country cannot in respect of coal successfully compete with other countries. Thus sales have seriously diminished, prices have had to fall, profits for many of the old pits are negligible or non-existent, some 160,000 miners are out of work, many thousands are on short time, and the number increases daily. Why? Largely because of the reduction of the output of coal per shift, and therefore the much higher cost of wages per ton. And the item of wages, being the greatest in the total cost, is the one which has the heaviest effect in preventing competition with other countries where the conditions are the reverse—where there is greater production per man shift, and thus a lower cost for wages per ton. The position will not be altered without the miners themselves move. Large sections are still showing resistance. But knowledge is growing that the men have been led by the noses into the present mess by the ultraists among their leaders. It was bound to come; and come it has with disastrous effects upon the miners themselves. Many of them are now realizing that the flouting of economic conditions cannot be carried on indefinitely; but in the end there will be a rebound, to the injury of those who have been fools enough to think that they are omnipotent in such matters. Hence the number of miners is increasing who desire to see a retracing of steps to saner conditions, and who are willing to help to bring them about. But those conditions would never have grown so severe had it not been for those wild-brained individuals who thought they could effect permanent good by supplanting order by disorder. Instead of improving the miners' conditions, they have worsened them; and even now are trying to save their faces by urging them immediately to give notice to terminate the national agreement, and to present a new proposal for wages. They have still a good following; but, fortunately, not one which can do harm, as was seen last week at the Blackpool special delegate conference when the proposal of the Executive of the Miners' Federation, that the Joint Committee of owners' and miners' representatives should continue their investigations into the conditions of the industry, was agreed to by 571,000 to 230,000 votes—although an amendment had been moved to the effect that new wage proposals should be drafted.

That vote shows the way the wind is blowing among the men. Last week we referred to other indications; fresh ones have been made during the interval. One of the principal of these was a letter in "The Times" by Mr. James Meadows, Financial Member, South Wales Miners' Federation, Rhondda Main Lodge. It was a letter which acknowledged that the policy of the past had been wrong, which made no secret of the evil results, and which suggested a line of policy that would promote relief from the present situation. Mr. Meadows showed the serious amount of unemployment and partial employment existing among the South Wales miners; and then he said: "We miners here, in common with those in other exporting districts (though not to the same extent as we have), have been living in a fool's paradise since 1916 or 1917. Those were the days of ca' canny; and from the fruit of that evil policy we are to-day suffering." He sketched the appalling condition of wives and children; and then he said that the duty of the delegates' conference was to present proposals which would arrest the slump, and so give our export coal a chance in the markets of the world. Whether this suggestion was considered at the conference is not stated in the meagre newspaper reports. The views of this sapient leader are that forthwith there should be a reduction of the price of coal by 4s. Labour costs, he asserts, could be eased by 3s. per ton; and the railway authorities, as in Germany, should allow 1s. per ton off the carriage of all exported coal. That in his judgment is the solution, and the road by which prosperity will again come back to the mining industry. In our opinion, and in that of a good many fully competent judges, he is right. We like the spirit of the letter; also the strength of will which (if supported)

would send the extremists and their destructive policy to other business than that of misleading the miners. Says Mr. Meadows: "We miners can do it. We can reduce labour costs by 3s. per ton; and we will do so before we will see our vital industry perish. Even Mr. Cook cannot stop us. There is a determination in South Wales anyhow to get away from crippling the mining industry, and to assist it to get on its feet and find work for the 100,000 partially unemployed and the 50,000 totally unemployed." Unless this is done, he sees further misery for the men, their wives, and children. Mr. Frank Hall, the Derbyshire miners' leader, has advised the men to sit tight, and abide by the conditions of the moment, as he is not foolish enough to say this is an opportune time to end the agreement. He states that throughout the mining areas there are 160,000 miners without work; and there is no single union which could stand a strike for any length of time. As to amalgamation with the railway and transport men, Mr. Hall says there are thousands of railway men unemployed, and the transport workers are split up into forty or fifty unions. There does not seem much chance of cohesion in those circumstances. But the agitator Cook only last Saturday, in addressing the West Auckland miners, expressed the view that the miners' conditions justified a strike. But he is not silly enough to think they can fight alone; and so he devoutly hopes the engineering, railway, and transport workers will on June 4 decide on a "practical brotherhood," thus helping the miners to secure relief from the present mess into which he and others have brought them. But he wants the relief to come by his own route, and not by that which better balanced minds know is the only sane and safe one. The methods of the wild men would only precipitate the miners into a state of greater chaos and immeasurable misery.

Specifying and Inspecting Piping on Consumers' Premises.

To inspect, adjust, and maintain gas-consuming appliances (excepting the provision of materials) is only one part of the service which should be rendered by gas undertakings, in order to ensure efficient use on consumers' premises. That is a matter vital to business maintenance and progress in these days when the severity of competition is growing and is being preferentially assisted by political benevolence. That work, however, should be complementary to something else. Supervision by the suppliers of gas, who are the most competent and interested people, should extend to the efficient piping of new buildings, with power to condemn old piping which has reached a dangerous state or is no longer capable, through insufficient carrying capacity, to meet requirements. Authority in the latter respect is highly desirable, because the greater proportion of houses were piped when there was no thought of gas becoming the popular heating agent that it is to-day. But there is no use whatever in being able to condemn if there is no accompanying authority to refuse to supply appliances beyond the capability of the piping to render service. That seems to be a defect in the specification authorization which has so far been statutorily granted. There may be refusal to supply if new or renewal piping is not according to specification; but nothing is said as to cases of insufficiency or defects on old premises. That is where much incapacity resides, and where revision or renewal is much needed. Power to specify and ensure that new premises are properly equipped will, of course, prevent architects and builders putting-in, for economic reasons, piping that cannot fully meet the probable ultimate requirements of the tenants.

As already indicated, several undertakings have to-day statutory power to specify piping; and no undertaking which has that power would be without the assurance it gives of keeping things right for the future. Among the suppliers who have the power are the Halifax Corporation; and Mr. W. B. M'Lusky, the Engineer and Manager of the Department, introduced a discussion on the subject at the meeting last Friday of the Manchester District Institution of Gas Engineers. It will be seen from the report in other columns that the sections of the Halifax Corporation Act of 1920 are quoted which confer the power to specify, inspect, and test new, renewal, or extension piping on any premises. It will also be noticed that different specifications may be made for different classes of premises. If the Corporation find that there is not compliance with their specification, and refuse to supply until there is rectification, the occupier of the premises has the right to appeal to a petty sessional court; but there would be little hope of success if avoidable departures from the specification could be proved. The Halifax specification is given *in extenso*. It appears to be comprehensive, contains much useful information, and will be of value to others in entering upon this work, though it may not square in every detail with the present or prospective prescriptions of others. In the specification is noticed the provision that where gas and electricity supplies are being used on the same premises, the gas-pipes must not be fixed at a less distance than a foot from the electric wires. This reference to the subject is merely to direct attention to it and its importance; and to ensure consideration of the views of those who took part in the discussion at the meeting.

Institution Visits.

All the arrangements in connection with the annual meeting of the Institution of Gas Engineers, to be held under the presidency of Mr. J. Ferguson Bell, M.Inst.C.E., of Derby, are shaping splendidly. As to the visits, upwards of 250 members will be going to the Fulham Station of the Gas Light and Coke Company, to view the new Glover-West vertical retort installation now under construction. Simultaneously about 100 will visit the National Physical Laboratory; and about another 100 will inspect the Laboratories, &c., of the South Metropolitan Gas Company. In the visit to Derby, about 400 will be participating.

Praise for the Gas Exhibit.

To "The Times" Empire Day Number, Sir Lawrence Weaver, Director of United Kingdom Exhibits, contributed an article. Praise from the author of the exquisite volume "Exhibitions and the Arts of Display" is something of which to be proud. In the article, Sir Lawrence, writing of the Palace of Industry, remarks: "The British Empire Gas Exhibit stages once more its manifold public and domestic services in a changed setting of great architectural dignity, and has absorbed a large adjoining area in association with the Empire Food Demonstration Committee. Women visitors rejoiced in the gas show in 1924; they will with difficulty be lured out of its halls this year."

Ventilate the Bath Room.

A correspondent suggests that it would be a good thing, even where gas geysers are properly fitted, if users would turn-off the gas to the geyser and properly ventilate the room before using the bath. This would certainly obviate any danger. In his letter, our friend says: "There are still far too many accidents with geysers, which could be avoided if the user would always turn-off the gas to the geyser and ventilate the room, before having a bath. In no circumstances should the geyser be in operation while a bath is being taken. Every geyser should, of course, be fitted with a baffle, and a vent-pipe taken through to the open air and discharging above the eaves of the roof; but even when these precautions are taken, there is always a risk of down-draught under certain atmospheric conditions. It really amounts to this, that no one can fix a geyser, and say that under all conditions of atmosphere the flue will properly function." In the case of his Company, a card is issued with every geyser, with a suggestion that it should be hung in a prominent position in the bath room. The card bears, in bold lettering, this advice: "Before using Bath, Turn off Geyser Taps, and Well Ventilate Room." The Company have offered to supply the ironmongers and fitters in the district, on trade terms, with the necessary flue fittings for geysers, and with as many of the cards referred to as they desire, free of cost. Other undertakings may see fit to follow this good example.

Still Busy.

The revelations at the Barford inquiry as to the operations of the company promoting group at 43, Cannon Street (upon which comment was made in our issue for May 13, p. 445), have not deterred these gentry from raking-up some of their old prospectuses, and sending them out for the purpose of getting in more money. Further copies of the one which offers additional extension capital in the Chagford and Devon Electric Light Company, Ltd., have been received, and so have copies of that precious document referring to the Southern Counties Electric Light and Power Supply, Ltd. On the former the name of Eaton appears; on both are the names of the baronet Soame, Thompson, the Solicitor, and Turner & Co., the Auditors. Criticism of both these prospectuses has appeared in our columns.

Coal Exports.

The uneasiness over the position of the coal export trade is shown by the April returns to be fully justified. The total amount of coal exported in the month was 4,359,817 tons, as compared with 5,062,941 tons in April, 1924, and 6,841,423 tons in April, 1923. The value of the exports this April was only about half that for the same month of 1923—viz., £4,541,333, as compared with £8,914,748. The value for 1924 came about midway between the two—£6,326,197. The gas coal shipped last month accounted for 565,247 tons of the total quantity, compared with 691,449 tons in April, 1924, and 728,353 tons in April, 1923. The values were: Last month, £554,131; April, 1924, £837,902; April, 1923, £902,276. The average value per ton for gas coal last month fell below £1, or 19s. 7·28d. In the four months the total amount of coal of all kinds sent abroad totalled to 17,462,134 tons, compared with 20,768,891 tons in the corresponding period of 1924, and 25,535,825 tons in that of 1923. Of these quantities, gas coal represented respectively 2,286,093 tons, 2,673,295 tons, and 3,019,143 tons; the values attached being £2,314,933, £3,239,696, and £3,536,135.

Export Coke Doing Badly.

The export coke market is extremely unsatisfactory. In April, only 25,599 tons were shipped, as against 43,021 tons in April, 1924, and 87,885 tons in April, 1923. The values of these quantities were respectively £30,902, £76,509, and £138,043. In the corresponding four months of the three years, the quantities exported were: This year, 183,777 tons; 1924, 369,476 tons; and 1923, 382,438 tons. The values of these shipments were: This year, £270,987; 1924, £645,870; 1923, £566,984. The average value for April was only £1 4s. 1·75d., as against an average of £1 9s. 6d. for the first four months. In April last year, the average value was £1 15s. 6·8d—better than last month by 11s. 5d.

Sulphate of Ammonia.

Business in sulphate of ammonia abroad distinctly looked up last month. The quantity exported was 19,445 tons, as compared with 12,148 tons in April, 1924. In the four months, 99,052 tons were shipped, as against 99,406 tons in the same period of last year, which is close showing. Spain and the Canaries were good customers in the month, with 11,296 tons; and their total purchases during the four months have amounted to 39,995 tons. Japan comes next in the four months with 17,082 tons, and Dutch East Indies follows with 15,167 tons.

Coal Tar Products.

The amount of benzole exported during April was 19,588 gallons, as compared with 10,545 gallons in April, 1924. The quantity shipped in the four months of the year was 135,109 gallons, as against 263,294 gallons. Of naphtha only 4331 gallons were exported in April, compared with 50,206 gallons in April, 1924. In the four months, 15,226 gallons were shipped, which is small in comparison with the 100,003 gallons in the first four months of 1924. Combining the exports of tar, oil, creosote, &c., 1,115,066 gallons were sent abroad last month, as against 1,999,073 gallons in April, 1924. In the four months, 11,944,012 gallons were shipped, as compared with 11,512,821 gallons in the same period of 1924.

OBITUARY.

ROBERT DEMPSTER.

It is with great regret that we announce the death at Cape Town of Mr. Robert Dempster, J.P., of Vale Royal, Cheshire. Mr. Dempster was the Senior Member of Messrs R. & J. Dempster, Ltd., of Gas Plant Works, Manchester. He was born at Dundee on Feb. 16, 1853, and was the eldest son of the late Robert Dempster, of Elland and Penmaenmawr. Of late years the deceased had not been as prominent in our public life as in years gone by, when, with Mrs. Dempster, he was a regular visitor to our annual meetings. He, however, never lost touch with the industry in which he had for so many years taken such an active part, and regularly attended Directors' meetings at Manchester. He was also a Director of several Iron and Chemical Companies.

Mr. Dempster was always a great traveller. Many years ago he made a world tour, and visited numerous foreign gas-works. Although during last year his health was very unsatisfactory, he was of the opinion that a sea voyage to South Africa would be beneficial. A post-card received on the day of his death, posted at Victoria Falls, stated how well he was feeling, and that he proposed to travel through to Cape Town (a distance of 1700 miles), with only one stop for rest. Until further news is received, we can only surmise that the effects of this long train journey proved too much for him; for his death occurred there on May 17.

The Late Mr. Robert Dempster, J.P.

Mrs. Dempster predeceased her husband; and the deceased leaves two daughters, Mrs. W. F. Perkins and Miss Edith Dempster, J.P. The latter was accompanying her father on what has proved to be his last journey.

Mr. Dempster for many years has resided at Vale Royal. Only recently he excavated the remains of a Cistercian Abbey, accounts of which have already appeared. His mind was always receptive to improvements in machinery; and the splendidly equipped works at Manchester are largely due to his organization—he being always on the *qui vive* for new ideas in this direction. His wide knowledge of men, and love of travel, enabled him to view the things of to-day with a broad outlook, which made him a most agreeable companion. Strange to say, when he left England he was due to return on the s.s. "Windsor Castle," which boat is bringing the body, to be buried at Whitegate Church, Cheshire.

Dr. Davidson's Claim on the War Office.—We understand that the Royal Commission on Awards to Inventors who considered the application of Dr. W. B. Davidson in respect of a process for the extraction of toluole from coal gas (see *ante*, pp. 322, 381) have recommended to the Treasury that £350 should be paid to Dr. Davidson as remuneration in respect of all uses, past, present, and future, by the Crown of his process. Sums expended by Dr. Davidson in producing and testing the process were considered in arriving at the award stated.

PERSONAL.

Mr. J. H. Canning, Engineer and Manager of the Newport (Mon.) Gas Company, is the new President of the Rotary Club of Newport.

We have pleasure in announcing that Mr F. G. Brockway, son of the late Mr. E. J. Brockway, J.P., of Cleethorpes, has been appointed Manager and Secretary of the Cleethorpes Gas Company in succession to his father.

The marriage took place at Southampton, on May 23, of Mr. Frank Henry James, Secretary of the Imperial Continental Gas Association, to Mary Margaret, younger daughter of Mr. and Mrs. Charles Fox, of Merrietrees, Ambridge, near Romsey.

Upon completing 25 years as Secretary to the Cannock, Hednesford, and District Gas Company, Ltd., Mr. T. A. Nicholls has been presented by the Directors with a grandfather clock, with Westminster chimes, as a mark of appreciation of his services.

Mention was made in the "Journal" for May 13 of the forthcoming retirement of Mr. W. S. Haddock from the position of Gas Engineer and Manager to the Warrington Corporation. Born in Warrington, Mr. Haddock was in 1877 apprenticed to Mr. James Paterson, who was at that time Engineer of the gas-works, which had just been acquired by the Corporation from the Gas Company. Later he became deputy to Mr. Paterson, and was appointed Manager in July, 1888. In 1888-89, the quantity of gas sold and accounted for was 178¾ million c.ft., while in the year just ended (1924-5) it was about 534 millions, or rather more than the figure for 1914-15. The price in 1888-89 was 3s. per 1000 c.ft., and in 1923-24 2s. 10d.; a figure of 2s. 1d. having prevailed for a number of years in the interval. Woodall-Duckham vertical retorts were erected in 1922. The net profit made during Mr. Haddock's management, up to the end of 1924, was £223,000.

Mr. Albert Cook, who will take up the duties of Gas Engineer and Manager to the Warrington Corporation as from July 1, was in 1910 articled to the late Mr. T. O. Paterson, then Engineer and Manager to the Birkenhead Corporation Gas Department. On completion of his articles, Mr. Cook was appointed Assistant Clerk of Works, and later Assistant Works Superintendent. During the five years he spent at Birkenhead extensive alterations were carried out, including a spiral-guided holder of 2½ million c.ft. capacity, a 2½ million installation of vertical retorts on the Woodall-Duckham system, a large power house, exhauster house, residual wells, new carburetted water gas plant, showrooms, high-pressure mains, &c. For three years to the end of 1918 he was Assistant Works Superintendent to the Wolverhampton Gas Company; and then he went to Warrington, first as Works Superintendent, afterwards to become Chief Assistant Engineer and Manager.

FORTHCOMING ENGAGEMENTS.

May 29.—Chemical Engineering Group of the Society of Chemical Industry.

Sixth annual general meeting at the Chemical Industry Club at 8.15. Mr. C. S. Garland, B.Sc., A.R.C.Sc., F.I.C., Chairman of the Group, will preside. The meeting will be preceded by an informal dinner in the Club at seven o'clock.

June 5.—Southern Association of Gas Engineers.

Visit to the works of the Bournemouth Gas and Water Company.

June 6.—Scottish Jr. Gas Association (Eastern District).

Annual outing at Anstruther.

June 8.—Institution of Gas Engineers.

Council meeting at No. 28, Grosvenor Gardens, at 2.15.

June 8.—Evening Star Lodge.

Regular meeting, at 5 p.m., in the Grand Temple of the Freemason's Hall, Great Queen Street, London.

June 9-11.—Institution of Gas Engineers.

Annual general meeting in the Great Hall of the Institution of Civil Engineers, Great George Street, Westminster. At the termination of Thursday's meeting, a Council meeting will be held at the Institution of Civil Engineers.

June 10.—Association of Statutory Inspectors of Gas Meters.

Annual general meeting at the new County Hall, Westminster. The afternoon will be devoted to a visit to the Finsbury gas meter testing office.

June 11.—Coke Oven Managers' Association (Midland Section).

Visit to the Barugh plant of Low-Temperature Carbonisation, Ltd.

June 12.—Institution of Gas Engineers.

Visit to Derby. Members should note that the luncheon will be in the Drill Hall, Derby—*not* the Assembly Rooms, as indicated in the programme.

June 20.—London and Southern District Junior Gas Association.

Visit to the Cambridge Gas-Works.

ELECTRICITY SUPPLY MEMORANDA.

Poplar Washes and Wastes.

Poplar has done many queer things in its time, and owing to a propensity for throwing away the money of the ratepayers without getting a fair return for it, the Council have got into serious hot water. They have now taken to heating water by electricity for the public baths. From the point of view of those who control these, the transaction is regarded as all right. From the point of view of the electricity undertaking, it cannot be so described; from the national point of view, it is a disgraceful waste of fuel. "Meteor" of the "Electrical Times" says: "Our friends the gas men always assume the electric heating of water to be an impudent stunt." It is. "They regard it as particularly preposterous where large bodies of water are in question." It is. "We put it to them, however, that it is cheaper than gas for heating public baths on a large scale." It is not. "Poplar," we also read, "has thrown out its gas heating at the baths because it is too expensive; it has replaced gas by electric heating, because the latter is cheaper." The comparison is made with gas at 3s. 9¾d. per 1000 c.ft., or 9·15d. per therm, which includes all costs, even the capital charges, while electricity is taken at the bare fuel costs, or a little over—so little that calculation hardly enables its detection. No other generating costs are included; and nothing for distribution, capital, or other charges. The current has to be taken at off-peak load times—between 5 p.m. and 8 a.m., after 1 p.m. on Saturdays, and between noon and 2 p.m. every day. At such times, the generating plant is not working at its best efficiency, so that the fuel costs then would be somewhat greater than the average figure. Those conditions—particularly the difference between what is comprised in the charge for gas and that for electricity—"Meteor" considers are things which can be ignored, and, by ignoring them, he feels justified in saying that electricity is "cheaper" for the purpose of water heating. It would be cheaper still if the "real live" Electrical Engineer of Poplar decided to rule-out the fuel costs, as he has done everything else in supplying energy to the public baths. Notwithstanding gas being supplied on a commercial basis and electricity not, "Meteor" says that the cost for electrical energy actually works out at 2·33d. per bath; for gas it averaged 2·23d. per bath. Now if the Gas Company had been such asses as to have supplied gaseous energy at bare net fuel cost, can "Meteor" guess where electricity would have been in the comparison? We are also wondering whether he knows what it means "to play the game."

Extravagant Heat Expenditure.

In view of the foregoing, it seems absurd to follow-up this Poplar public baths heating scheme; but we confess to being interested in the data attaching to it, which are found in a paper that Mr. Jefferson Hope, the Baths Superintendent at Poplar, read at the annual conference of Baths Superintendents in Leeds. He takes the average slipper bath as requiring 30 gallons of water at 110°. Assuming the temperature of the inlet water to the heater is 50°, the 30 gallons would require (without any stand-by and other heat losses) 18,000 B.Th.U. to raise the temperature to 110°, or 5·26 units. Naturally, with the heat losses, more energy would be needed than that. A swimming-bath containing 80,000 gallons of water raised in temperature from 50° to 74° would require 19,200,000 B.Th.U., which again takes no account of heat losses, or of heat to maintain the temperature at 74°. Mr. Hope takes the calorific value of the coal used for the boilers at 12,000 B.Th.U. per lb., which is equivalent to 26,880,000 B.Th.U. per ton. We have not the generating figures for Poplar; but we will adopt an average consumption of 2·24 lbs. of coal per KW.H. generated, or 1000 KW.H. per ton, which would be equal to 3,420,000 B.Th.U. per ton. On this basis, to generate sufficient energy to supply 19,200,000 B.Th.U. to the swimming bath (without taking into account heat losses and compensation heat) 5·61 tons of coal would have to be consumed at the generating station. Take a boiler using coal and (or) coke at 75 p.ct. efficiency—there are records of higher efficiencies than that—20,160,000 of the 26,880,000 B.Th.U. of the ton of fuel would be transmitted to the swimming bath water. That is more than the heat required for raising the temperature by 24°. Mr. Hope takes an efficiency of only 25 p.ct. for coal-heated boilers used for raising the temperature of bath water, which means a waste of 75 p.ct. of the heat of the coal. This efficiency probably applies to the slipper baths with their intermittent requirements; but if we accept that as representing the efficiency for also providing the swimming bath water, it means that more than the heat transferred to the 80,000 gallons of water (19,200,000 B.Th.U.) would be realizable from 3 tons of coal. The 1 ton or the 3 tons compares with the 5·61 tons required for electricity generation to provide the same amount of heat. All we need say is that this is a scandalous misuse of coal. Incidentally, it may be mentioned that there are gas-fired boilers on the market which give an efficiency of 80 to 85 p.ct.

Charged for Fuel Only.

Mr. Hope further states that the Borough Electrical Engineer agreed to supply current at off-peak load times at "a little over station fuel costs." This no ordinary commercial undertaking could do, and assert that it was a good commercial transaction. The charge per unit is 0·517d., and in the first (September) quarter's working, the cost per slipper bath was 2·33d.; the consumption being 4·52 units. If that is so, and the volume of water per bath was 30 gallons and the temperature 110°, then the temperature of the inlet or unheated water was more than 50°. In the December quarter, consumption averaged 6·04 units, which raised the cost for current per bath to 3·1d. If Poplar's present system of heating public bath water proves anything at all, it is that it is a waste of fuel, and of no advantage to the electricity undertaking, in that the current is supplied at a shade over fuel costs. This is not business on competitive lines; and therefore "Meteor's" thin boasting falls miserably to the ground.

Electric Cooking in L.C.C. Schools.

Nearly two years ago—to be exact, on July 31, 1923—the London County Council passed a resolution requesting the Education Committee to consider and report whether or not at appropriate centres cooking by electricity should be taught. The Committee have now reported that they have given the matter careful consideration. The time suggests that this must be true; but the fact that the Committee have arranged for only "experimental" installations at certain cookery centres appears to indicate that they are not yet satisfied that, for those who attend the Council schools, electric cooking is precisely what is required. We put this to the Committee—that all that can be taught in the schools which differs from instruction with a gas cooker is the management of the electric cooker. Heat is heat; food is food. When one comes to competition between the two systems in schools, then, if the young people or their parents are not to be "taken in," they must be told the relative costs (not at cut electrical prices per unit) of doing an equal amount of work on the two types of cooker—including all boiling operations such as are common on a gas-cooker in an ordinary house. We know Labour members of local authorities are keen to advance the interests of electricity—not that, on their own confession, they know much about the matter (other than the usual electrical platitudes), but the political policy of the Labour Party is nationalization, and electricity has been entered among the industries and services which are to come under State control in those wonderful days that are to come. Any and every step which will help towards this end is being taken by nearly all who profess and call themselves Labour-Socialists. They are to be pitied. Some of them are mentally as blind as bats, and badly require educating to assist them to see things in their true form. However, the Education Committee of the London County Council are going to watch the school experiments carefully, and a further report will be submitted when sufficient experience has been gained. That report, when in due season it arrives, will be read with interest, analyzed with care, and commented upon with justness and prudence.

Bad Companions.

In the equipment of buildings, electric light wires and gas-pipes should not be immediate companions. This has been demonstrated in no uncertain manner from time to time. According to the newspapers, the Royal Sussex County Hospital at Brighton—a hospital above all places—had a serious experience last Saturday week. An electric wire fused, which melted a gas-pipe, and ignited gas. Fortunately there was no panic among the patients; and the flames were got under in about half an hour. But it was an exciting half-hour. We have not yet seen an electrical contradiction of the fusing, nor, strange to say, has there been any authoritative statement to the effect that the gas-pipe was melted by a burning cigarette end, which some careless and uneconomical person threw away.

Mr. Pearce and Electricity Reorganization.

The Manchester Corporation are, it appears likely, about to lose the services of Mr. S. L. Pearce, General Manager and Engineer of the Electricity Department, who has rendered the city excellent service. He has been offered an important post by the Government. It is understood that it is in connection with the electricity reorganization schemes, so that, we take it, he will, if the appointment is accepted, become associated with the Electricity Commissioners.

Barking!

The electrical feature of last week was the starting, by His Majesty the King, of the large Barking Station of the County of London Electric Supply Company. It is the first super-power station for the Metropolis. Its ultimate capacity will be upwards of 750,000 H.P., or (say) 600,000 KW.H. The section inaugurated contains plant with a capacity of 125,000 H.P. or (say) 100,000 KW.H. For this, one report states, more than 4000 tons of coal will be required per week. We cannot vouch for the accuracy of this. The engine-room is designed for four turbo-alternators—two of 50,000 H.P. and two of 25,000 H.P. They produce current at 6600 volts; and this pressure is raised by transformers to 33,000 volts for economical transmission to sub-stations at a distance. Upon the first section of the power house and mains £2,500,000 has been expended, about £1,000,000 of which has gone in transmission mains. The whole station may be said to typify latest practice in efficient generation on a large scale; and it is the first real contribution to the unification of the electrical system for London and the Home Counties. One report, however, states that a wholly unified system for that large territory can hardly be expected before 1971. The electrical people consider this new station something really magnificent. They should, in order that heads may not get too inflated, have attention drawn to the reminder given by Mr. Milne Watson in his Presidential Address to the Society of British Gas Industries, that to supply to the community the heat energy delivered in gas alone—that is, to say nothing of coke—by the Beckton Gas-Works, the Barking super-station would require to have ten times its present maximum capacity. Indeed, the present capacity of the Barking station is no more than the extension required annually by the largest London gas undertaking to meet the normal increase of business. Another point is suggested by the speech of the King at the opening. His Majesty said he was gratified to learn that the difficult problem of co-ordinating the numerous systems of supply within London and the Home Counties is approaching solution; and he trusts the development will spread throughout the country. There is something that ought to have had prior consideration, and that is the co-ordination of the use of the fuels of the country. That is an economic question of pre-eminent importance; but the Government have altogether overlooked or ignored it. His Majesty also referred to the reduction of the smoke of our large towns by the aid of electricity. We are afraid that commodity will not assist very materially in that direction, unless we are to eat with increased velocity into our coal resources. Electricity might claim to do a bit better in that direction if the co-ordination of the use of fuel was something that had materialized into a national system, and some other fuel than raw coal was used partially or wholly for steam-raising.

NATIONAL GAS COUNCIL.

Annual Report.

The following report, together with the statement of accounts, for the year ended March 31 last, having been approved and adopted by the Central Executive Board, was presented to the members at the seventh annual general meeting yesterday.

GAS REGULATION ACT.

Application for Orders, Section 1.—During the period under review six gas undertakings have lodged applications with the Board of Trade for the substitution of a standard or maximum price per therm in lieu of their existing price per 1000 c.ft., and 31 Orders have been made.

Section 1.—*Amending Orders.*—During the period under review, application has been made for a revision of the standard or maximum price per therm granted to gas undertakings under section 1 of the Gas Regulation Act in respect of three undertakings. Although these applications for an Amending Order are usually made by the local authority, it is interesting to note that in some instances an application for a reduction of the standard price has been put forward by the undertakers themselves.

Section 10—*Special Orders.*—During the same period 41 gas undertakings have lodged application under this section with a view to extending the powers conferred by their Private Acts and obtaining additional powers. It will be remembered that proposals were made in the House of Lords last year for altering the expeditious and inexpensive method of procedure prescribed by section 10, and that the Council took active steps to prevent a change of procedure as being a retrograde step and inimical to gas undertakings—particularly the smaller ones. The dissolution of Parliament in November caused the Select Committee of the House of Lords who were considering this question of procedure to cease its functions; but the present Government have restored the Committee, the terms of reference and the membership being practically as before. This Commitee received the views of the National Gas Council on the subject several months ago, the gist of which was that the existing system is eminently satisfactory. Small undertakings, in particular, could not bear the cost of parliamentary contests; and it is hoped and believed that the Select Committee will not materially disturb the existing procedure.

PUBLIC UTILITY COMPANIES (CAPITAL ISSUES) ACT, 1920.

Members were reminded of the forthcoming expiry of the above Act on May 20 this year, and as a doubt had arisen as to the correct legal interpretation of sub-section (2) of section 2 of the Act, Counsel's opinion was taken on various points that were not quite clear, and circulated to all members who were operating under a "consent" obtained under the Act in question. Members were also advised, if they were still in doubt as to their position after the expiry of the Act, to consult their own legal advisers at the earliest possible moment, in view of the situation that would be created after May 20.

LONDON TRAFFIC ACT, 1924.

The Council carefully watched the progress of this Bill, which received the Royal Assent on Aug. 7 last, and secured a number of

important amendments at the Committee Stage. The Act, as passed, ensures that earlier notice will be given to gas undertakings of programmes of work proposed by highway authorities than was the case with the original Bill. Opportunities are provided for gas undertakings affected to make earlier representations to the Minister of Transport in regard to such programmes, and generally the Act allows of closer co-operation between highway authorities and public utility undertakings than did the original Bill.

The officers of the Council attended a conference convened by the Minister of Transport on Feb. 23, with reference to the working of section 4 of the Act. An explanatory letter was sent to all gas undertakings likely to be affected by the London Traffic (Closing of Streets for Works) Order, 1925.

Factory and Workshop Act, 1901—Chemical Works Regulations, 1922.

The illness of the Chief Inspector and Deputy Chief Inspector of Factories caused considerable delay in getting a definite response to the representations made by the Council that certificates of exemption from the above regulations should be granted in suitable cases—particularly in the case of small undertakings.

Certificates of exemption have recently been issued to all the gasworks on whose behalf the Council have from time to time appealed in respect of one or two regulations. These certificates, however, are considered by the Council as quite inadequate; and they have again taken up the matter with the Home Office, and at the same time communicated with all the undertakings who have applied through them for exemption from certain of the chemical regulations, advising them also to write to the Deputy Chief Inspector, protesting that, as at present drafted, these certificates would afford no relief at all to their undertakings.

The Council are still in negotiation with the Home Office.

Mains of Insufficient Capacity.

The Council are glad to report that, after prolonged negotiation, a clause with regard to relief from the obligation on gas undertakings to give a supply of gas where the mains are of insufficient capacity has at last been agreed with the railway companies. Undertakings should, therefore, in the future be able to obtain the insertion of such clause in their Private Bills or Special Orders without difficulty.

Standard Cookers.

The Council have reported to all the members that the Parkinson Stove Company, Ltd., and Messrs. R. & A. Main, Ltd., are now in a position to accept orders for "Standard" gas cookers in large quantities, at special prices, according to the quantity required.

The Council have circulated a form of inquiry to their members to ascertain the estimated monthly requirements of each undertaking, in order that members may pool their orders, and thereby receive the benefit of the discounts obtainable, however small their individual requirements.

Rating of Machinery.

The Council appointed a Committee to investigate this difficult question, and upon their recommendation decided to give evidence before the Departmental Committee who were considering the matter. The gist of such evidence, which was given by Mr. William Cash, F.C.A., on Nov. 6, was that there was grave danger in dealing with the rating problem piecemeal, and that no satisfactory solution could be reached unless the question of the rating of machinery was dealt with in conjunction with the whole problem. The Committee were urged to recommend no principle in regard to the rating of machinery which would have the effect of so altering the incidence of rating as to affect prejudicially the gas industry.

The Departmental Committee have issued their report, which (although not adopting the recommendations of the Council) does not appear to affect materially the interests of the gas industry.

Mains and Cables in Highways.

The Council have been indefatigable in their efforts to protect the members against the endeavours of highway authorities to encroach upon the statutory rights of public utility undertakers in this connection.

The joint conference of representatives of gas, water, tramway, and electrical interests convened by the Council has on several occasions considered this subject at length. A comprehensive memorandum on the question has been prepared and circulated to members. The joint conference decided to confer with representatives of the County Councils' Association, the London County Council, and other bodies representing highway authorities, and such meeting is to be held on May 7, under the chairmanship of Sir Henry Maybury, Director-General of Roads.

Heavy work has also been entailed in advising and assisting individual undertakings in connection with claims put forward by highway authorities. County Councils have, in pursuance of their avowed policy, endeavoured to force undertakings to accept protective clauses in favour of county councils in their Private Bills or Special Orders. So far the efforts of the Council in resisting these claims have been crowned with success.

Railway Companies' Bills—Protective Clauses in Favour of Gas Undertakings.

The Council carefully examined the Railway Bills which were being promoted by railway companies this session, and wherever proposals appeared which were likely to affect a gas undertaking, the Council immediately communicated with the undertakings concerned, warning them of the dangers involved.

A joint conference of the Associations representing the gas, water, tramway, and electrical interests was convened by the Council to consider this question. This conference approved the substance of a draft standard clause prepared by the Council's Parliamentary Agents (Messrs. Dyson, Bell, & Co.) for insertion in Bills promoted by railway companies for the purpose of protecting public utility undertakings. Steps were being taken to obtain the insertion of this clause in Railway Bills introduced this session. Such Bills, however, were withdrawn. Consequently no opportunity was given for pressing the matter. The way, however, has now been paved for suitable action when Railway Bills are introduced in the future.

Proposed Government Financial Assistance to the Electricity Supply Industry.

This all-important question has received the closest attention of the Council. Appropriate communications were sent to Mr. Ramsay M'Donald and other Cabinet Ministers in the Labour Government, and a similar course has been adopted with Mr. Baldwin and the members of the present Government. The Council also set-up a Special Committee to investigate the whole question in all its bearings. The recommendations of this Committee have been carefully considered and approved by the Central Executive Board. The Parliamentary Committee of the Council have been appointed a Committee of Action, and will direct the campaign which is being undertaken to ensure that the views of the industry receive every consideration.

Members of the Council have been supplied with a full statement of the case against any scheme of State-aid for the development of the electricity supply industry.

Tar.

Serious consideration has been given by the Council to the question of promoting the sale of tar for the purpose of road making and road surfacing, and also to the question of countering the incessant and insidious propaganda which is being undertaken by other interests in this respect.

A Committee was appointed to investigate the subject, and steps have been taken to raise the necessary funds for publicity purposes. The Council also decided to take space in the Chemical Hall at Wembley for an exhibit of "British Tar for British Roads." The design for the stand has been executed by the well-known artist Mr. Norman Wilkinson. An expert has been engaged to take charge of the exhibit. Steps will be taken to ensure that the road surveyors of the country, and others who may be interested in the subject, will have an opportunity of seeing what is confidently expected to be a very attractive exhibit.

The Council have received evidence that the sale of prepared tar for road construction and road maintenance was injured considerably by the issue of an unfortunate and misleading circular of the Ministry of Transport, which was likely to be interpreted as meaning that washings from tarred roads were injurious to fish-life, whether the roads drained directly into fishing waters or not. The Joint Managers interviewed Sir Henry Maybury on the question; and, while receiving certain assurances (in themselves not unsatisfactory), were not successful in inducing the Ministry to issue a further circular explaining the true position.

Fixing of Geysers.

The Council have issued during the year a booklet of instructions for fixing geysers, intended for the use not only of gasfitters employed by gas undertakings, but of individual firms who undertake such work. This booklet has had a very good reception in the Press; and judging by the number of orders received from all parts of the country, its publication is widely appreciated.

Some difficulty has been experienced during the year in regard to the regulations of the Metropolitan Water Board regarding water supply to geysers. These regulations, which date from the year 1872, are no longer appropriate to modern practice; and steps are being taken with a view to having them amended in accordance with the specification issued by the Ministry of Health early in 1924.

Report on Carbon Monoxide.

The report to the Board of Trade by Mr. Butterfield, one of the Gas Referees, on the subject of "Carbon Monoxide in Public Gas Supplies," was published last July, and the Council appointed a Committee to consider the recommendations contained in this report.

This Committee held joint meetings with representatives of the Society of British Gas Industries (being makers of gas appliances), in accordance with the undertaking given by the Council to the Board of Trade in the letter appearing as an appendix to Mr. Butterfield's report, "with a view to submitting to the Board of Trade effective proposals, if such can be devised, for discouraging (and, if possible, preventing) the sale of undesirable types and qualities of fittings and appliances and the fixing of geysers and similar appliances without adequate and trustworthy means of ventilation—it being borne in mind that a great many gasfittings and appliances are not supplied by gas undertakings, but by firms over whom they have no supervision or control."

A questionnaire was dispatched to members, asking for the fullest possible information with regard to existing systems of inspection of piping, fittings, and appliances in dwelling-houses.

A Joint Sub-Committee from the Council and the Society of British Gas Industries was formed with the object of preparing a draft specification regarding the quality and size of piping to be used in gas installations.

The question of inspection of piping, fittings, and appliances is also being considered. Reports on these matters will be submitted to the Central Executive Board for consideration.

Instructions regarding the proper methods of fixing geysers have been widely circulated; and close attention is being given to the question of the elimination of undesirable types of apparatus.

Exhibitions.

British Empire Exhibition, 1924.—The Council lent their patronage, and gave financial assistance, to the highly successful Gas Exhibit at Wembley last year. The Council also took part in the World Power Conference which was held at Wembley in June-July of 1924. The gas industry was well represented by a Gas and Fuel Section, and some very interesting papers were read by representatives well known in the gas industry.

Smoke Abatement League of Great Britain—Manchester Confer-

ence.—The Council also were patrons of this Exhibition and conference, which was held in the City Hall, Manchester, in November last, and five delegates from the Council represented them at the conference in question.

District Executive Board.

The Council again tender their thanks to the District Executive Boards, Management Committees, Chairmen, and District Secretaries for their valuable help during the period under review.

Co-operation.

The Council have continued their policy of co-operation with other public utility associations with kindred interests, and much good work has been accomplished by joint conferences with these bodies. The British Water-Works Association have co-operated with the Council in more than one matter of importance to both the industries concerned; and this is only one of the many instances that could be cited which show the value of joint effort.

General.

There are innumerable other matters in connection with which the Council have taken steps to promote the interests of the gas industry or those of some individual undertaking.

Pressure was brought to bear upon the Port of London Authority, with the result that a further reduction was made in February in dock dues. This means that gas undertakings will have to pay less for coal passing through the Port of London.

Again, gas undertakings have been advised from time to time as to the eligibility of proposed schemes of work submitted by them to the Unemployment Grants Committee.

The scheme of workmen's compensation insurance inaugurated by the Council has worked very satisfactorily, and has resulted in premiums being quoted for this particular risk at a considerable reduction upon those quoted by the tariff companies. Two firms of insurance brokers are at present operating this scheme in respect of an increasing number of gas undertakings.

A Conjoint Committee with the Tramways Association, the British Water-Works Association, and the Incorporated Municipal Electrical Association have dealt successfully with several cases where borough accountants or treasurers have endeavoured to transfer from trading departments to their own supervision matters relating to wages, accountancy, collections, control of stores' accounts, &c.

The interests of the gas industry have been carefully watched with regard to the inquiry into the Standard Revenue of Railway Companies, and it is satisfactory to all traders that the appeal of the Railway Companies against the judgment of the Railway Rates Tribunal with regard to the computation of the standard revenue of the railway companies did not succeed.

Counsel's opinion has been taken in the past twelve months with regard to a new basis of assessment suggested by a well-known rating surveyor in the case of certain gas companies who were members of the Council; and it is extremely satisfactory to report that the figure finally agreed in these cases was a considerable reduction upon the original figures, which were the outcome of such computation.

The Council are at the present time engaged also in moving the necessary amendments to the Roads Improvement Bill and the Public Health Bill, 1925, and are submitting evidence before the Committee of the Board of Trade to inquire into British Trade and Industry.

That the Council's efforts on behalf of their members have proved of avail in more than one instance is borne witness to by letters received expressing appreciation of advice given and assistance rendered.

Income.—The total amount received by the Council by way of joint subscription to the National Gas Council, the British Commercial Gas Association, and the Institution of Gas Engineers (for research work) during the period under review amounted to £58,013, of which sum £16,642 is retainable for the purpose of the National Gas Council.

To the above figure of £16,642 there must be added interest on deposit account and payments by manufacturers in respect of sales of the Council's "Standard" gas cookers—viz., £232 and £241 respectively—making a total of £17,115, of which £1938 has been carried forward (being the proportion of subscriptions paid in advance) to meet the expenses which will be incurred during the financial year 1925-26. The income of the National Gas Council in respect of the year ended March 31, 1925, including the amount of £1732 brought forward from the last account, is therefore £16,909.

Expenditure.—The expenditure of the Council for the past year amounted to £16,882. The surplus on the year's working is therefore approximately £27, which decreases the accumulated deficit at the date of the last account to £2228.

Reserve Fund.—Of the sum of £1300 shown in the last account, as the balance of the reserve for the purchase of furniture and fittings for the Council's offices, at No. 28, Grosvenor Gardens, and for the expenses in connection with the acquisition of the premises in question, £234 has been expended for the purpose of additional office equipment, leaving a balance of £1066.

Membership.—The total number of undertakings subscribing to the funds of the Council at March 31, 1925, was 841, representing 88 p.ct. of the total make of gas in the United Kingdom.

D. Milne Watson, *President.*
W. J. Smith, *Secretary.*

May 12, 1925.

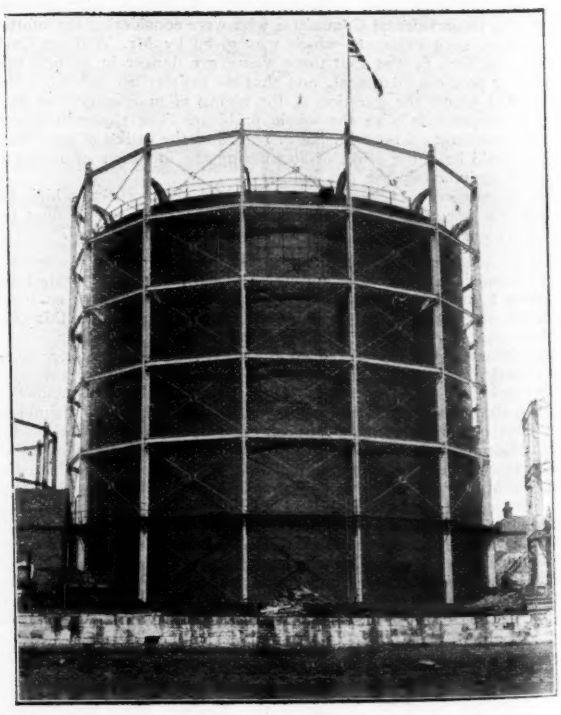
NOVEL GASHOLDER EXTENSION AT WEYMOUTH.

The difficult problem of increasing the capacity of a gasholder while still keeping it available for immediate service has been successfully solved at Weymouth, where a third lift has recently been added to a large gasholder without removing the gas, and under conditions that permitted the holder to be at call for use upon the district at any time during the progress of the extensions. The gasholder is a guide-framed one in a steel tank 100 ft. diameter; and the scheme by which the capacity was increased by 50 p.ct. while still keeping it in commission was devised by the Company's Engineer, Mr. J. T. Joyce, in collaboration with Messrs. Samuel Cutler & Sons, Ltd., who carried out the contract.

The guide-framing was first strengthened and heightened to the extent of the travel of the extended gasholder, and then the new lift was built around the existing second one (while still inflated with gas), from which it was temporarily suspended. The two-lift holder was therefore free to function in the ordinary way, but carried as a passenger the new lift nested round its circumference, first in skeleton form and finally in fully-sheeted condition. Considerable ingenuity was necessary in substituting below water level new cup carriages for the old displaced bottom rollers; but this and many other obviously difficult details were successfully negotiated without the least hitch, and the entire extension was completed in less than contract time.

The handing-over of the holder to the Company was made the occasion of a gathering at the gas-works on May 16, when the Mayor of Weymouth and many prominent townsmen made an inspection of the works.

At the subsequent luncheon, the Deputy-Chairman, Mr. S. S. Milledge, who presided in the absence abroad of the Chairman, Mr. Mark C. Frowde, gave a most interesting account of the history and present extensive operations of the Company, and highly complimented both the Engineer and the contractors (who were represented by their Chief Staff Engineer, Mr. W. T. Palmer) upon the successful completion of a notable example of gasholder engineering.



The Completed Holder.

University of Michigan.—From Prof. Alfred A. White, of the Chemical Engineering Department of the University of Michigan, we have received a copy of the annual Bulletin descriptive of the Course in Chemical Engineering, which can be obtained on request from the University authorities. The Department was established in 1897; and the present Head, Prof. White, who has been a member of the Department since its founding, has contributed significantly to its development. A new building was completed and occupied about a year ago, and is excellently equipped for teaching chemical engineering. The technique is taught through two courses. The first group—the preparatory group—is common to all engineering work at Michigan; while the second includes the special studies that constitute the professional courses in chemical engineering.

THE GAS EXHIBIT.

Every day sees some little addition, some finishing touch, to one or another of the beautiful parts which go to make up the Gas Exhibit at Wembley; and it is gratifying to learn that both the attendances and the interest are maintained.

The demonstrations of Empire Food given in the Cookery Hall are proving very popular, and the audiences are growing as what is to be seen and heard becomes more widely known. The demonstrations take place four times daily—at 11.30, 2.30, 4, and 6.30—and every class of food is dealt with. There are complete meals of several dishes, with hot and cold sweets. The people who attend show themselves most interested, and are of every class. As a matter of fact, quite a few would appear to spend the whole of their time in the Cookery Hall. They are evidently keen on gas cooking; and though this method has been in use for so long, and is now so general, astonishment is still expressed by some people on finding out how much can be done with the gas cooker. Talks on Empire food form a prelude to the demonstrations.

GOOD LIGHTING.

The lighting of the General Exhibits Hall, the Cookery Hall, and the Empire Food Hall attracts much attention. It is carried out by a series of ten-light outside type suspension lamps, which have been rendered most effective by the addition of really artistic silk shades. The lighting is well diffused; and the arrangement affords a good example of illumination for large halls.

Fruit Bottling and Jam Making.

LIVE EXHIBITS.

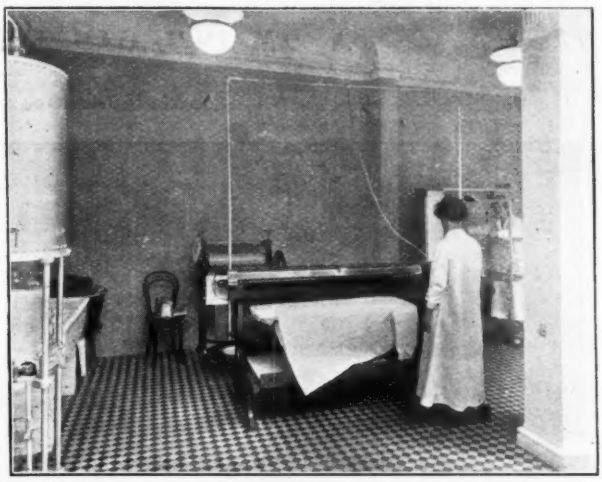
The value of the "live" exhibit is well exemplified by the fact that the gas-heated wafer-baking machine is a constant source of attraction to the people passing through the Palace of Industry.

Another feature of interest in the exhibit is the laundry, which is fitted with a live "Gladiron." The "Gladiron" itself is rather a big affair, weighing about 90 lbs.; but this need cause the manipulator no anxiety, for it is moved over the board by electricity in so easy a manner that anyone could use it. The iron is heated by high-pressure gas, provided by a small compressor. The laundry is fitted with hot water apparatus, ordinary domestic irons, a clothes airing cabinet, and a washer.

COOL CORNERS.

Which is the coolest and most restful spot for the tired visitor at Wembley? The "heat wave" of the past week urged sightseers to a solution of this problem; and the verdict seemed to be: "Within the Palace of Industry." One visitor said that his tired feeling speedily vanished as he reclined in one of the luxurious lounge chairs provided by the Gas Exhibit, and gazed on the cool marble of the charming Indian bathroom with its sunk bath. His companion voted for the near-by gas-ammonia machine, which will freeze a quart of ice cream or a variety of drinks in a few minutes, and to which reference was made in last week's "JOURNAL." The Cookery Hall naturally appeals strongly to women in need of a rest; and it possesses the advantage of having ample accommodation for the youngsters.

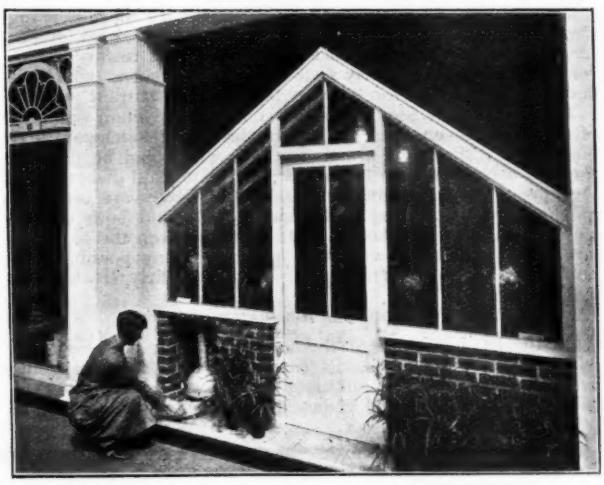
There appeared in "The Times" Empire Day Number, last Saturday, under the title of "Gas in the House and Workshop," an article in which the writer refers to the early investigations of Dr. John Clayton, and adds: "One wonders what would be the feelings of this pioneer could he inspect the British Empire Gas Exhibit in the Palace of Industry, and see the wonderful developments which have taken place in the intervening centuries." A description of the display follows; it is remarked that "credit must be given to the organizers of the Gas Exhibit for the artistic method they have adopted of revealing the complete story of the utilization of gas."



Domestic Laundry, showing 90 lb. Patent High-Pressure Iron.

THE "QUEAD" GAS COOKER.

Messrs. Wm. Geipel & Co., of Vulcan Works, St. Thomas Street, London, S.E., are showing in the Palace of Transport the "Quead" gas cooker, which roasts, toasts, grills, &c., by radiant heat applied simultaneously to both sides of the food. Baking, broiling, and plate warming are done in an oven above, with a separate door, by waste heat rising from the griller. For this apparatus are claimed "novel methods which create an entire revolution in modern family cooking." The griller and roaster consists of two vertical radiators, which are arranged opposite to each other and are adjustable, either nearer or further apart. Self-centring foodholders are provided to take chops, steaks, bacon, fish, toast, &c.; while for roasting there is a centrally supported meat hook, from which a joint or fowl may be hung. The hook is slowly revolved, by means of a substantial clockwork motor fitted to the outside of the oven There is said to be economy in the quantity of gas consumed as compared with an ordinary gas oven.



Greenhouse, showing Gas Heater Fitted Outside.

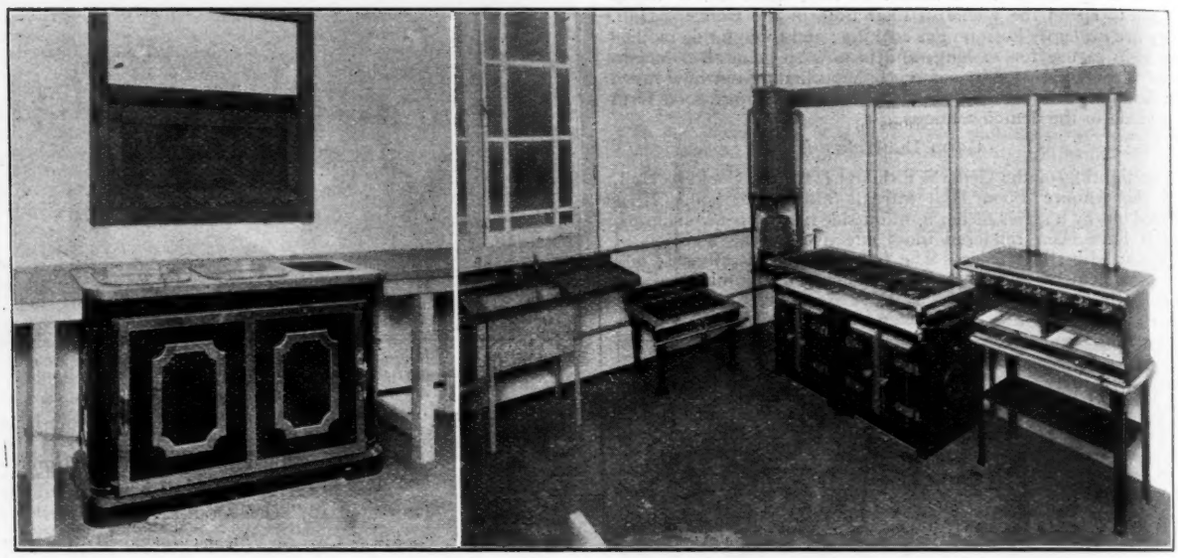
"COROLITE" CONCRETE MIXTURE.

Among the various uses of concrete mixtures for housing schemes, mention has been made of the system of Corolite Construction, Ltd., of Goschen Buildings, Nos. 12 and 13, Henrietta Street, London, W.C. In an article which appeared in "The Times" some time back, on the housing display, Sir Lawrence Weaver made the following reference to this method

of construction: Among the most promising of the new concrete mixtures is that known as Corolite, "which in Holland and elsewhere has stood the test of many years' weathering. The broad idea of this mixture is indicated by its name. The type of aggregate and the method of mixing provide a wall substance well furnished with a system of internal cavities, so that the most violent beating of rain is said not to cause any passage of damp through the thickness of the wall. So effective is this barrier of air passages claimed to be, that builders in Holland have even abandoned the normal precaution of a damp-course, as moisture seems unable to arise through the wall from the foundations."

A "MAIN" GAS KITCHEN AT WEMBLEY.

Specially Installed for Civic Hall Banquets.



[*Photo. Campbell Gray.*

VIEWS IN TH KITCHEN EQUIPPED BY MESSRS. R. & A. MAIN.

Visitors to Wembley last year will recall the large Civic Hall, which during the run of the Exhibition was taken, for a week or so at a time, by one large town or another in the country for the purpose of drawing attention to special local industries, advantages of a district from the point of view of manufacturers, attractions for visitors, &c. For such a purpose the hall itself is admirably suited; but the lack of suitable kitchen arrangements was felt to be a considerable drawback. Therefore, in preparing the hall for a similar set of engagements this year, it was determined to remove the reproach that a first-rate civic banquet could not be prepared on the spot. Messrs. R. & A. Main, of Gothic Works, Angel Road, Edmonton, were approached on the subject, and have fitted up a kitchen with apparatus which will delight the most exacting chef. Different municipalities will bring their own staffs; but all will be able to produce the most perfect results in this convenient and absolutely self-contained kitchen, which is designed throughout for the very best class restaurant work.

The service has been arranged conveniently along one side of the kitchen—one part to receive through a hatchway dirty plates and dishes, and waste material which can be dropped through a hole into the bin below; the plates and dishes being then passed to the right for washing. There are separate hatchways for receiving and handing out; and both can be closed if necessary. There is a partition between the handing-out side and the receiving side, to prevent any possible contamination of the food being served by the dirty crockery as it is handed-in.

The Gas Apparatus.

On the left-hand side of the service is a gas hot closet, on which meat, poultry, &c., is carved up and kept hot while being handed out. In addition, of course, to serving as a carving table, plates and dishes are warmed and kept hot in the closet, which is provided with the usual sliding doors. There are two carving wells, with removable tinned copper linings, which are easily cleaned and handled; and on the top there is a bain-marie, for keeping sauces, &c., at the required temperature.

On the other side of the kitchen, one is struck first by the excellent appearance of the gas cooker—which takes the form of a Main "Duke of York" double-oven range, each oven having double doors, and being packed, and lined with enamelled steel sheets. The convenience of the double oven is that one can be used (say) for pastry, while another is required to be at a different temperature for roasting. The hotplate is fitted with the very latest "Efficiency" type burners; and everything about the cooker is designed for easy cleaning and convenient service.

Next to the cooker is a double-compartment grill, with porcelain enamelled fat collectors. Here, again, one compartment can be used for grilling steaks, &c., while the other may be toasting bread or scones.

On the other side, is a stock-pot stove, with one large double concentric ring burner; each ring being controlled by a separate gas cock.

Plenty of hot water for washing purposes is provided by one of the firm's "Energy" circulating water heaters, fitted with automatic thermostatic control valve, and connected with a 20-gallon tank.

All the gas apparatus is provided with flues passing direct to the outside atmosphere.

The size of the kitchen, and the cooking capacity it was required to provide, called for careful planning to secure the greatest advantages. This it received; and Messrs. R. & A. Main have provided a well-selected set of modern apparatus which will be the admiration of all who are called upon to work with it.

Green Gasholders.—In Denver gas distribution has been developed largely on the system of district holders; and these holder stations are in the residential sections. Under the Doherty Ideal Distribution System (the one adopted) it is essential that the district holders should be located at load centres, which, in a city using gas for practically all domestic purposes, will be in residential areas. Mr. Wallace L. Thackrey (of the Public Service Company of Colorado), in the magazine of the American Gas Association, explains that, in the first place, care is taken to purchase sufficient land, so that the general lay-out does not look crowded. The holders themselves are surrounded by trees, which, when a few years older, will be quite tall and full of foliage, thus hiding to a large extent the holder. The holder is painted green, the shade of which matches that of the tree foliage, thus eliminating any unattractive spots or patches which would otherwise be visible through holes in the foliage. Members of the Midland Association of Gas Engineers and Managers who were fortunate enough to take part in the recent visit to their President at Oxford, will recall the pleasing effect, upon which Mr. Caton was heartily congratulated, of painting green a holder erected in a rural situation.

HORLEY DISTRICT GAS COMPANY (ELECTRICITY SUPPLY) BILL.

A Retrograde Step.

The gas industry will learn with surprise and disappointment that this Bill, which, after a searching inquiry, was passed by the Earl of Clarendon's Committee in the House of Lords, has been rejected in what may well be termed a casual manner by a Committee in the House of Commons. This disappointment will be shared by all who have the Nation's welfare at heart; for the passing of the Bill would have constituted an important and rational advance along the path of progress towards a reasonable method of utilizing our fuel resources. In this country electricity cannot, by the very nature of things, hope to supplant gas in many fields—notably those of cooking and heating. At the same time there are definite requirements which electricity can satisfy well. What is needed, therefore, is a recognition of the limitations of electricity, and, following this, a go-ahead policy based on public service. No better method of producing cheap gas and cheap electricity exists—and at present this applies particularly to rural districts—than by centralization of gas and electricity supply at one station; and this procedure, because it is essentially non-wasteful, is in the interests of the Nation. Co-operation is not merely an ideal: it is a practical ideal. That which is at present preventing its yield of fruitful results is insular bigotry. The passing of the Horley Bill would have helped to break this down; as things are, its rejection will serve to strengthen it.

Electricity Commissioners *v.* Parliament.

It is unnecessary to go into the details of the Horley Bill, for the proceedings before the House of Lords have already been dealt with in the "Journal," and an account of those before the House of Commons Committee is published in later columns of this issue. To put the matter in a nutshell, however, and to emphasize the injustice of the latter Committee's decision, it may be stated that, so long ago as last June, the Horley Gas Company gave formal notice to the Electricity Commissioners that powers to supply electricity were to be applied for; and similar notice was given to the Board of Trade. In July, however, in view of the uncertainty with regard to the passage of Mr. Clarry's Bill, they passed a resolution to promote a Bill, and added that the Commissioners be informed. This was followed-up subsequently, it appears, by sending the Commissioners a copy of the Bill on the same day as it was deposited in Parliament. In October the parliamentary notice of that intention was published. In October, also, the Horley and District Electricity Supply Company, Ltd., were registered, and applied to the Electricity Commissioners for an Order empowering them to supply. The Electricity Commissioners held no inquiry, but in January, 1925, made an Order in favour of the Electricity Company. This fact certainly seems to indicate that the Electricity Commissioners held strong views of their own as to whether the Gas Company should have even a chance of succeeding; and the hearing before the House of Commons Committee developed into a contest between the Electricity Commissioners and Parliament. Unfortunately the former prevailed, owing, it may confidently be asserted, to the strong declaration of the Commissioners' policy by Sir Harry Haward himself, referred to later.

Arguments of the Opposition.

The main argument of the opposition was that competition between gas and electricity is a desirable—even a necessary—factor. Whatever the strength of such an argument as applied to a large industrial area, it has been proved that in a district like Horley it is in the public interest to have a combined supply. Every point put forward by the Gas Company was advantageous to the consumer. The same overhead charges and administrative expenses, the fact that cheaper capital could be raised by the Company, restriction of dividends, certainty of supply within twelve months—all these favoured the consumer. It was suggested by the opposition that, whereas the Electricity Company had a strong incentive to effect economies and reduce the price, in order to increase business, the Gas Company had not, because increases in the sale of electricity would to some extent be at the expense of gas. While the gas undertaking was operated under the sliding-scale, no such sliding-scale was attached to the electricity undertaking. To satisfy any qualms on this score, the Gas Company made a proviso to the effect that the Electricity Company should have the same power of revising prices and method of charging as they have in an Order. As to the bogey of competition, it was suggested by Sir Harry Courthope-Munroe that the House of Commons Committee should give the Gas Company their Bill, and then let the Ministry of Transport, if they thought fit, pass the Order also. There would then be the highest cut-throat competition in Horley. Of course, a good deal was said, towards the close of the hearing, of the bulk supply of electricity from the Barking station of the London County Electricity Company; but the Gas Company were entirely willing to take this supply, and, indeed, had a large potential consumer in the Sussex Electricity Supply Company, Ltd. In spite of all this, however, the Bill was rejected.

Mr. Clarry's Bill.

The Horley Bill has brought out the general view of the Electricity Commissioners in regard to Mr. Clarry's Bill, which, according to Sir Harry Haward, is that there may be cases where it is right that the supply of electricity should be entrusted to a gas company, because it may be the only means by which a district can get a supply. "*The prospects may be so poor that nobody except the gas company may be able to deal with the situation.*" The Commissioners say that on general grounds it is preferable that the supply of electricity should be in the hands of the body whose sole duty is this supply. In other words, assuming that Mr. Clarry's Bill is passed, gas companies will have their case adjudicated by a prejudiced tribunal. They will be left with the crumbs which fall from their master's table. This is a highly disagreeable state of affairs.

SHORT BIBLIOGRAPHY OF COKE.

Compiled by H. J. Hailstone, A.M.I.Chem.E.

Interest in coke, its properties, manufacture, and use, has been stimulated by the competition organized by the "Gas Journal," at the instigation of Sir Arthur Duckham; and doubtless many intending competitors will have made searches into the literature of the subject for data and records of previous investigators. No apology is therefore needed for the publication of the list given below, which bears ample witness to the importance of the subject and the degree of study to which it has been submitted by numerous workers.

Some of the main contributions are here tabulated under general titles which indicate roughly the scope of the subject dealt with; but it must not be forgotten that enormous volumes of data exist under such headings as "Carbonization of Coal," "Gas Manufacture," &c., which might well be included under the heading "Coke." To have included these items in the present list would have entailed a task of indexing that the writer finds at present impossible, and would also prove too voluminous for a single issue of the "Journal."

The main points of earlier work are summarized in the recognized text-books on "Coke;" and for the titles of these (there is a considerable number) the publishers' catalogues should be consulted. The pages of the "Gas Journal" ("Journal of Gas Lighting" prior to 1917) give further testimony to the importance of the subject; and the indexes of former volumes are well worth investigation. Other journals dealing particularly freely with the technology of coke are "Fuel in Science and Practice" (published by the "Colliery Guardian" Company, Ltd., No. 30, Furnival Street, London, E.C. 4), and "Brennstoff-Chemie" (Verlag. W. Girardet, Essen, Germany).

Author.	Subject.	Reference (Title, Year, Page)
Agde & Recke	Structure	Brennstoff-Chemie. 1923. 341.
Arend & Wagner	Reactivity	Revue de Métallurgie. 1924. 585.
Bahr	Reactivity	Stahl und Eisen. 1924. 1, 39.
Barker	Domestic	Fuel Research Board. 1922. Report 4.
Beilby	Structure	Journal Society Chemical Industry. 1922. 344T.
Berger	Formation	Gas- und Wasserfach. 1924. 424.
Breuer & Broche	Ignition	Brennstoff-Chemie. 1923. 168.
Broche	Structure	Brennstoff-Chemie. 1923. 343.
Bronn	Combustibility	Zeitschrift für angewandte Chemie. 1923. 410.
Bunte	Reactivity	Brennstoff Chemie. 1923. 167.
„	Production	Gas- und Wasserfach. 1924. 721, 739, 758.
Bunte & Fitz	Reactivity	Gas- und Wasserfach. 1924. 241.
Bunte & Kolmel	Ignition	Gas- und Wasserfach. 1922. 592.
Charpy & Godchot	Formation	Comptes-Rendus. 1917. 966.
Cochrane	Quality	Iron & Steel Institute. May, 1918.
Denstedt & Schaper	Ignition	Zeitschrift für angewandte Chemie. 1912. 2625.
Diller	Use	American Foundrymen's Association. 1911. 559.
Dodds	Specific Gravity	Chemical & Metallurgical Engineering. 1923. 324.
Erdmann	Ignition	Brennstoff-Chemie. 1922. 257, 278, 293.
Evans	Coking Theory	Journal Society Chemical Industry. 1918. 213T.
Fieldner	Structure	Chemical & Metallurgical Engineering. 1923. 1052.
Fieldner, Hall, & Feild	Structure	Industrial & Engineering Chemistry. 1915. 399, 742.
Findley	Analysis	Journal Society Chemical Industry. 1919. 93T.
Fishenden	Domestic	Fuel Research Board. Technical Paper 3. 1922.

Fischer	Combustibility	Brennstoff-Chemie. 1923. 33.
Frere	Use	Proc. Inst. Civil Engineers. 1891. iii. 59.
Fronhëiser	Structure	Journal Franklin Institute. 1893. 34.
Gloetzer	Structure	Brennstoff-Chemie. 1922. 344.
Greenwood & Cobb	Structure	Journal Society Chemical Industry. 1922. 181T.
Hausser	Structure	Stahl und Eisen. 1923. 903.
Hewson	Combustion	Journal Society Chemical Industry. 1918. 60T.
Heyd	Combustibility	Brennstoff-Chemie. 1923. 339, 341.
Illingworth	Coking Theory	Journal Society Chemical Industry. 1920. 133T.
Kinney & Perrott	Testing	Industrial & Engineering Chemistry. 1922. 926.
Koppers	Testing	Stahl und Eisen. 1922. 569.
Kreisinger	Domestic	Industrial & Engineering Chemistry. 1921. 31.
,, & others.	Structure	U.S. Bureau of Mines. Tech. Paper 137 & 138 of 1917. Tech. Paper 138 and Bulletin 135 of 1918.
Kreulen	Structure	Chemisch Weekblad. 1923. 344. Brennstoff-Chemie. 1924. 233.
Lant	Coking	Brennstoff-Chemie. 1922. 97.
Lepsien	Combustibility	Journal für Gasbeleuchtung. 1918. 3.
Lewis	Structure	Industrial & Engineering Chemistry. 1923. 502.
Lierg	Coking	Zeitschrift für angewandte Chemie. 1922. 264.
Lissner	Sulphur	Brennstoff-Chemie. 1923. 305, 328.
Malleis	Structure	Industrial & Engineering Chemistry. 1924. 901.
Moldenke	Specific Gravity	Metallurgical & Chemical Engineering. 1910. 400.
Plenz	Ignition	Gas- und Wasserfach. 1922. 478.
Powell	Desulphurization	Industrial & Engineering Chemistry. 1920. 1077. 1921. 33. 1923. 951.
Rhead & Wheeler	Combustion	Transactions Chemical Society. 1912. 831. 1913. 51.
Rose	Specific Gravity	Industrial & Engineering Chemistry. 1922. 1047.
Schmolke	Specific Gravity	Stahl und Eisen. 1922. 1237.
Schreiber	Combustibility	Brennstoff-Chemie. 1923. 273, 341.
Selvig & Parker	Specific Gravity	Chemical & Metallurgical Engineering. 1923. 547.
Sherman & Blizard	Reactivity	American Institute of Mining & Metallurgy. 1923.
Shimomura	Manufacture	Chemistry & Industry. 1923. 556.
Simmersbach	Structure	Stahl und Eisen. 1914. 108.
Sinkinson	Theory of Coking	Transactions Chemical Society. 1920. 839.
Sinnatt & Moore	Ignition	Journal Society Chemical Industry. 1920. 72T.
Stober	Use	Stahl und Eisen. 1919. 525, 567.
Sutcliffe & Evans	Combustibility	Transactions Society Chemical Industry. 1922. 196T. Iron & Steel Institute. 1923. 75.
Terris & Schaller	Specific Heat	Gas- und Wasserfach. 1922. 761, 780, 800, 818, 832.
Thau	Combustibility	Chemical & Metallurgical Engineering. 1924. 306, 347.
,,	Quality	Stahl und Eisen. 1923. 1127.
,,	Production	Stahl und Eisen. 1922. 1153, 1242.
Thorner	Reactivity	Stahl und Eisen. 1886. 71.
Weill	Properties	Revue de Métallurgie. 1905. 557.
Weyman	Combustion	Transactions Society Chemical Industry. 1925. 47T.
Wheeler	Reactivity	Journal Iron & Steel Institute. 1923. 27.
,,	Ignition	Chemical Society Transactions. 1918. 945.
,, & Tideswell	,,	Chemical Society Transactions. 1919. 895.
Wibaut	Sulphur	Brennstoff-Chemie. 1922. 273.
Wirmer	Combustion	Zeitschrift für angewandte Chemie. 1918. 134.

"B.C.G.A." Conference at Harrogate.—Unfortunately it has been impossible to include in this issue the report which is in hand of the valuable conference held last Thursday, under the auspices of the British Commercial Gas Association. It will appear next week.

THE TAR POSITION.

[Communicated.]

The present quotation for tar in this country is 30s. per ton. In May of last year it stood at 50s. per ton.

With prices falling as they are, and stocks increasing, producers would welcome any proposals having for their object the stimulation of sales in such a way as to provide an adequate return for the cost of distillation and its incidental charges. The time is undoubtedly opportune for British tar manufacturers to bestir themselves, having regard to the circumstance that France now urgently needs the commodity they have to offer. It is a fact that, while the mileage of roads in England, Wales, and Scotland aggregates 38,600 (24,000 classified under A, first class, and 14,600 under B, second class), roads in France of various classes corresponding in traffic conditions to the British A and B classes aforesaid, cover a mileage of 40,000. It may be added that the French classification of roads is somewhat different from the British method, as it is based on questions of property.

Now the production of tar in England, Scotland, and Wales for the year 1923 was: From gas-works, 960,000 tons; from coke ovens, 715,000 tons; and from other sources about 25,000 tons—making a total of 1,700,000 tons. In the year 1924 France produced from her gas-works 230,000 tons, and from her coke oven works 190,000 tons—a total tonnage of 420,000, utterly inadequate for her requirements.

Coming to the question of the utilization of tar on roads, in Great Britain, 300,000 tons of prepared tar were sold for this purpose. In France the sale was only 150,000 tons of tar, mostly in its crude state. Prices in France for crude tar in January, 1924, were 350 frs. per ton at the works; in January, 1925, the price was 230 frs. At that date the price of prepared tar was 370 frs. per ton delivered at the works.

On the roads in the Riviera, and on other well-known motoring roads in France, the inconveniences arising from the dust nuisance have become very acute. The French are crying out for road-spraying material to remedy the evil. There are heavy stocks of tar in the stores of her Ally ready for disposal. What can be done to come to equitable terms as between buyer and seller? Are the difficulties insurmountable?

The Comité Central des Producteurs et Distillateurs de Goudron en France, it is believed, would welcome an arrangement advantageous to both parties. Which of them will make the first move to negotiation?

We are well aware that at Wembley special attention is being directed to tar problems, with what effect there has not been sufficient time to show. What is strongly urged is that the potentiality of France as a tar purchaser should at once be recognized, notwithstanding considerations arising from respective values when rates of exchange are taken into account. The views of "Journal" readers on a subject of great commercial interest to both countries are invited.

Installing an Under-Water Gas Syphon.

The Boston Consolidated Gas Company have lately completed the installation, under the Chelsea Creek, East Boston, of a 30-in. cast-iron gas syphon; and as some rather unusual features were involved in the building and placing of it, a description of the work has been contributed by Mr. D. S. Reynolds, the Company's Engineer of Construction, to the pages of the "American Gas Journal." From this it appears that the main supplying East Boston crosses the Chelsea Creek by means of a 24-in. steel pipe from the shore to the vertical leg of the 30-in. syphon; down 55 ft. to the horizontal portion—which is 35 ft. 6 in. below mean low water, and is 150 ft. long between risers—then up about 48 ft. to the 24-in. steel pipe connecting to the East Boston shore. The steel pipe is supported on wooden pile towers, driven into the bed of the creek at distances of about 35 ft. Each tower consists of four oak piles, supporting steel saddles, to which the pipe is rigidly clamped. Expansion and contraction are provided for by means of large flanges flexible enough to allow for the lengthening or shortening of the pipe due to changes in temperature. All joints in the steel pipe are made by bolts, with red lead putty. The 30-in. syphon itself is made of cast iron 1⅛ in. thick. It is pointed out that this thickness was selected to provide a pipe that would be certain to remain sunk—the ordinary weight of gas pipe being able to float if both ends were tightly closed and the pipe filled with gas or air—as well as to afford protection against the effects of corrosion. There is an electrically driven deep-well pump to remove the condensation from the syphon. When the horizontal pipe had been placed safely in position on the supporting piles, the two vertical legs were assembled with poured-lead joints on the deck of a lighter, and the bulkheads in the tops of the drip-trees were removed, allowing the water to fill the pipe. The vertical legs were then lowered, so that the spigots entered the bells of the drip-tees, when a diver made the joints with lead wool, and caulked them with a compressed air driven caulking tool. The syphon was afterwards pumped out, and the two 24-in. steel pipes connected to the vertical risers.

SOCIETY OF BRITISH GAS INDUSTRIES.

ANNUAL GENERAL MEETING.

THE Annual General Meeting and Dinner of the Society took place in the Hotel Cecil, London, W.C., last Wednesday, under the Presidency of Mr. D. MILNE WATSON, D.L., M A., LL.B., who delivered his address.

MINUTES OF LAST MEETING.

The minutes of the previous annual general meeting were taken as read, and signed.

The SECRETARY (Mr. Arthur L. Griffith) said unfortunately Mr. J. Wilfrid Drake (the Chairman of the Council) was unable to be present; and the following cablegram had just been received from him:

s.s. "Leicestershire," Lisbon.

Please ask President tender my congratulations to new President, Chairman, and officers, and also express to all members my appreciation and thanks for their kind assistance and co-operation during my year of office. Wish you successful and enjoyable meeting.—J. WILFRID DRAKE.

Alderman Fred J. West (Lord Mayor of Manchester) was prevented from attending by an important Council meeting; and Prof. Arthur Smithells had written:

I am extremely sorry that I shall not be able to attend the annual meeting or the dinner. I particularly regret my absence on this occasion. I have been in the surgeon's hands, and after six weeks of nursing home am now in the convalescent stage. I am getting on very well; but, of course, it takes time to recover after this kind of ordeal.

Please convey my regrets.

ARTHUR SMITHELLS.

He had also received other apologies for absence.

On the proposition of the PRESIDENT, it was agreed that the following telegram should be dispatched to Prof. Smithells:

The Society of British Gas Industries in general meeting much regret that you are unable to be with us to-day, and send best wishes for your speedy recovery.—MILNE WATSON, President.

REPORT OF THE COUNCIL.

The CHAIRMAN then presented the nineteenth annual report of the Council, on the work of the Society during the year 1924-25. It was as follows:

We have to record the death of the following members:—

William H. Tilley, of the firm of Tilley Bros.

J. G. Stewart, Chairman of Stewarts and Lloyds, Ltd.

The Society wishes to offer its congratulations to the following gentlemen:

Sir Dugald Clerk, K.B.E., who has been awarded a Royal Medal of the Royal Society for his application of scientific principles to engineering problems, particularly to the development of the internal combustion engine.

The Rt. Hon. Sir Henry E. Duke, on the Peerage conferred upon him by His Majesty the King under the title of Lord Merrivale.

Alderman Fred J. West, C.B.E., on his election as Lord Mayor of Manchester.

Institution of Gas Engineers.—We learn with much pleasure that the Lord Mayor of Manchester has been nominated for election as an honorary member of the Institution at their annual meeting in June.

British Empire Exhibition, 1925—Gas Exhibit.—Members will be pleased to know that very satisfactory arrangements have been made with the Exhibition Authorities not only for having the same prominent position in the Palace of Industry as in 1924, but for additional space, which has been acquired upon very advantageous terms. This will enable the cookery lectures to be given in a separate hall, and so prevent their being interfered with by noise and movement, as was the case when they were delivered in the Second Hall last year. Arrangements have also been made, upon the suggestion of the Empire Food Committee, for lectures and demonstrations to be provided and our hall used to bring food subjects before the public. There will now be proper office accommodation; and a drawing room has been placed at the disposal of women journalists for rest, writing, rendezvous, &c., at the suggestion of Lady Burnham, on behalf of the Society of Women Journalists. It thus appears likely that the Gas Exhibit will this year be a greater centre even than before for propaganda on behalf of gas. The increased space provided has allowed a greater number of exhibits to be shown. The British Empire Exhibition Committee have awarded the Society a bronze medal in recognition of our co-operation in the 1924 Exhibition.

Gas Safety Committee.—The Society is co-operating with the National Gas Council in connection with the recommendations in Mr. W. J. A. Butterfield's report to the Board of Trade, and especially with regard to the requirements of safe fittings. A Joint Committee has been formed consisting of eight members of each body. It is hoped that good results will emanate from the efforts of this Committee.

Trade Mark "SOBGI."—The registration of the trade mark "SOBGI" has now been completed, and certificates granted by the Patent Office under the following classes:

Class 8.—Gas Meters, Gas Regulators, and Gauges.
" 13—Gas Fittings made of Metal.
" 15—Glass for use in connection with Gas Fittings and Appliances.
" 16—Refractory Material for use in connection with Gas Heating Appliances.
Class 18—Gas Stoves, Gas Ranges, Gas Radiators, for Heating; Gas Geysers and Gas-Heated Water Circulators in the nature of the Stoves.

Retort Setters.—The terms of the Manchester Agreement between Section I. of the Society and the Amalgamated Union of Building Trade Workers expired on May 1, 1924; but by mutual understanding this was continued *pro tem.*, pending a satisfactory conclusion being arrived at regarding an extension of the agreement and the introduction of a new signatory in the Federation of Gas Employers. The new Agreement, which was signed in London on Nov. 13, 1924, is working satisfactorily, and will continue in operation until May 1, 1926. It is hoped that its provisions will remove many anomalies which existed before owing to the difference in rates and conditions between the gas-works' and contractors' employees.

Standard Gas Valve Flanges.—The recommendations of the Joint Committee of the Institution of Gas Engineers and our Society have now been approved, and agreement has been arrived at between the Committee and the British Engineering Standards Association. We understand that particulars of the standard flanges will shortly be published.

Standardization of Medium Size Inverted Mantles.—This matter has been under consideration by the Lighting Section, and a certain amount of agreement has been reached. It is hoped further progress will be made.

Refractory Materials.—Active work is being carried on by the members of the Fireclay Section; and everything is being done to improve the manufacture of refractory materials. Classes have been formed in Stourbridge for workers in the industry, and are meeting with success.

Register of Names of Gas Apparatus.—As the outcome of a suggestion from the Gas Stove Section, a register of names of apparatus has been prepared from the schedules sent in; and in the event of a new piece of apparatus being brought out, the register can be searched by any of the members, to see if the name has been anticipated.

Illumination Committee.—Sub-Committees have been formed by the British Engineering Standards Association to deal with the questions of:

1.—Standardization of methods of testing, and specifying the characteristics of, glassware and translucent materials.
2.—Fittings.

A representative of our Council has been appointed on these Sub-Committees, and we shall give all the support we can.

Revision of Railway Classification of Goods.—Messrs. Tweedy & Holt, of Halifax, have watched our interests at meetings of the Railway Rates Tribunal; and their reports on railway matters are issued in the "Bulletin" and the monthly circular-letter to the members. Among other matters which have been under consideration, and on which action nas been taken, may be mentioned:

Board of Trade Inquiry into British Trade and Industry.
National Confederation of Employers' Organizations.
Unemployment Insurance (No. 2) Act, 1924.
Company Law Amendment.
Preferential Tariff Treatment of British Goods in Australia and New Zealand.
Canada—Customs Tariff.
Standardization of Contract Conditions.

Smoke Abatement Exhibition—Manchester.—The Society gave its patronage to this exhibition, which was held in Manchester in November, and was represented at the Smoke Abatement Conference in connection therewith.

British Commercial Gas Association.—The propaganda work of the Association, especially in connection with the Gas Exhibit at Wembley, is proving beneficial to all engaged in the gas industry. We congratulate the Association on its very successful annual conference in Liverpool, at which a number of our members were present.

University of Leeds—Celebration of Coming of Age and the Jubilee of the Yorkshire College.—The Society was represented at the celebrations in December last in connection with the Coming of Age of the University and the Jubilee of the Yorkshire College.

Quarterly Bulletin.—The Council have felt that the "Quarterly Bulletin," while doing very useful work, was too intermittent to be of real service by keeping our members in close touch with the work of the Society; and we have decided that only two half-yearly issues—one after each of our general meetings—shall be retained, which will contain full reports of our meetings in the spring and autumn. Circular-letters will be issued after each monthly Council meeting, so that the members will be kept in touch with matters which are being dealt with. They trust their efforts in this particular direction will be appreciated, and that the more frequent communication with the members will tend to a greater interest being taken in the Society, and to cement the individual interests for the benefit of the industry.

Membership.—The membership of the Society is steadily increasing; some additional firms having recently become members.

City and Guilds of London Institute.—The prizes in connection with the City and Guilds of London Institute's examination in gas engineering, gas supply, and gasfitting have been duly awarded and announced in the Technical Press.

Visit to Manchester.—The April meeting of the Council was held in Manchester, when the members were welcomed by the Lord Mayor, who afterwards entertained them to luncheon at the Town Hall.

The Council take this opportunity of according their best thanks to Alderman West for his kindness and hospitality.

Presidential Badge.—A handsome badge of office, to be worn by our President, was presented during the year by Mr. J. Wilfrid Drake, Chairman of the Council; and our President was invested with it at the autumn general meeting.

The Presidency.—The Society wishes to accord its best thanks to Mr. D. Milne Watson, D.L., M.A., LL.B., for his valuable services during his presidency. On his retirement he has been pleased to accept the office of a Vice-President; and we hope that we may long have the benefit of his counsel and advice. We also desire to place on record our best thanks to the Rt. Hon. Lord Weir of Eastwood for his able address at the last annual meeting; also to Mr. J. Wilfrid Drake, Chairman of the Council, for his paper at the autumn meeting entitled "Some Aspects of the Metric System," which led to a good discussion. The Council have much pleasure in announcing that the Rt. Hon. Sir Alfred Mond, Bart., M.P., has accepted the presidency of the Society for the coming year.

On behalf of the Council,
J. Wilfrid Drake, *Chairman.*

The Report Adopted.

Mr. B. B. Waller said that, in the absence of the Chairman, it fell to him to move the adoption of the report. He thought they might congratulate themselves upon the varied number of matters that the report embraced. Members would appreciate that the Council had had a fairly active year, with the diverse subjects that had come before them for review. In glancing over the report for the previous year, he noticed that a prominent subject on that occasion was their new offices. They were firmly established there now; and the more they saw of them the more they liked them. They did the Society great credit, and yet not greater credit than was due to an organization of their standing. It was, however, felt that perhaps a little more use might be made of these offices by the members in general; for at the present time they seemed to be utilized almost entirely for the Council meetings. It was open to all the members to make use of them. Another matter to which he would allude was that of Sectional meetings. It was felt that a little more zeal and interest might be shown in calling meetings of the different Sections, which would be profitable to all concerned.

Praise for the Gas Exhibit.

Reference was made in the report to the British Empire Exhibition, 1925. When the question of a gas exhibit there was first brought before the Council, there was, perhaps, some little divergence of opinion—more particularly between the Heavy and the Light Sections—as to whether a repetition of the gas exhibit would be desirable. However, the members of the old Exhibition Committee of the Council had an opportunity of meeting the members of the National Gas Council; and the feeling at that meeting was overwhelmingly in favour of repeating the gas exhibit at Wembley this year. After that view had been expressed, he thought it would be the unanimous opinion of the members of the Society that the exhibit should be repeated, in view of the highly satisfactory results secured last year. Those of them who had already visited Wembley, and seen the new exhibit, would agree that the decision arrived at had been a wise one. The exhibit was a remarkable piece of work, and reflected great credit on the Gas Exhibit Committee and all concerned. Their best thanks were due to Mr. F. C. Tilley, their late Chairman, for his untiring efforts, and the very great interest he had taken in the matter of this gas exhibit. He understood from Mr. Tilley that, if possible, the spirit of co-operation between the various bodies who had been responsible for the gas exhibit had been even more strongly evinced this year. They believed that the cost of the exhibit this year might be round about one-half of what it was last year; and the Society were hoping that their members would subscribe in proportion to what they did on the previous occasion, and so maintain the good opinion that was formed last year of the assistance they gave to the exhibition from a monetary point of view, over and above the part they took in supplying material for the exhibit.

"A Very True Advertisement."

Personally, his opinion with regard to the exhibit was that it was bound to be a very fine advertisement for them. In this connection, he sometimes thought of what their old friend the late Mr. Walter King used to say to him: "When times are bad, advertise freely; and when times are good, do what you like about it." Mr. King believed strongly that when things were bad they should extend their advertising. Well, they could not say at the present time that things were good in the country. Trade was difficult, and orders were scarce; and he felt that this gas exhibit at Wembley was going to be of very great service to them.

While on this subject of the gas exhibit, he was reminded of the other side—the electrical side. They had all been struck by the extraordinary obsession of politicians of all parties at the present time—that electricity was the only thing to improve this earth, and that there was nothing to compete with it. However, he had just glanced at the President's address, and he saw this matter was very fully dealt with there; so he would say no more about it. It was mentioned in the report that the trade mark "SOBGI" was now registered. He saw that the classes to which it applied were more or less limited; but he thought it was going to be of very great service to the makers of apparatus who could use it. It would set a value on the goods that were supplied by members of the Society, and be a definite guarantee of quality to the purchasers. The Manchester agreement arrived at regarding rates of wages between the contractors and the gas companies was a very excellent piece of business. It was a matter of regret that some understanding could not be come to with those engaged in the engineering trade. Personally, he believed that if some addition could be made to their wages at the present time, with a *quid pro quo* in the shape of some alteration of hours of labour, &c., a better feeling would exist and more work would be obtained from their employees than was now the case. Negotiations were proceeding; but they seemed very slow. It was more work that was required for increased production. A friend of his had recently returned from Germany, where he visited a very large works of gas plant makers; and there he found the men were working about 60 hours a week, for the equivalent of some 31s. in the case of a skilled mechanic. It was almost hopeless for this country to try to compete in the open markets of the world against conditions such as these. The attention of members might be directed to the note in the report regarding the register of names of gas apparatus. It was a suggestion made recently, and it appeared to be a good one, that any makers who had registered names of apparatus should have them entered in the book of the Society kept for the purpose, so that they might be sure that there was no overlapping, and that names were not duplicated. As to the quarterly "Bulletin," perhaps members would say what they thought of the change-over to the issue of two half-yearly "Bulletins," and a monthly *résumé* of the work of the Council, so as to keep members a little more up to date. In the last monthly notice sent out, members were asked to let the Secretary have some information which was desired by the National Gas Council with regard to the amount of capital and the number of hands employed in their various enterprises. Only approximate figures were required; and no doubt members would send these along as soon as possible.

The membership of the Society was well maintained, and at the moment he believed numbered about 125. Their best thanks were recorded in the report to the President, Mr. Milne Watson, for his year of office. With his charm of manner and the breadth of vision displayed by Mr. Milne Watson all through his period of office, the year seemed to have passed all too quickly. Sir Alfred Mond possessed all the qualities necessary to make an admirable successor in the Presidency.

Mr. Albert W. Glover formally seconded the adoption of the report, which was unanimously agreed to.

The accounts for the year 1924 were also adopted, on the proposition of Mr. Thomas A. Braddock, seconded by Mr. J. Winson Scott.

Council Representatives of Sections.

The President announced that the following gentlemen had been elected to serve on the Council as representatives of the Sections:

Mr. J. W. Broadhead, M.I.Mech.E.,	to represent	Section I.
Major Richard Miles, B.Sc.	,,	II.
Mr. Albert E. Guest	,,	III.
Mr. R. J. Milbourne, J.P., F.C.S., A.M.Inst.C.,E.	,,	IV.
Lt.Col. W. R. Glover, C.M.G., D.S.O.	,,	V.
Mr. Cyril G. Davis, M.I.Mech.E.	,,	VI.
Mr. Philip H. Sugg	,,	VII.
Mr. Thomas F. C. Potterton	,,	VIII.
Mr. John Orme	,,	IX.
Mr. Frank West	,,	X.
Mr. H. J. Donkin, M.I.Mech. E.	,,	XI.
Mr. Joseph Taylor	,,	XII.
Dr. E. W. Smith, D.Sc., F.I.C.	,,	XIII.

New Chairman and Vice-Chairman of Council.

Mr. Samuel Cutler proposed that Mr. B. B. Waller be elected Chairman of the Council of the Society for the ensuing year. The name of Mr. Waller's firm, on the constructional side of the gas industry, was known everywhere; while Mr. Waller himself had served for about ten years on the Council, and in a quiet and unobtrusive manner had accomplished a great deal of useful work. He would therefore bring to the Chair a very ripe experience.

Mr. Harry J. Donkin seconded the proposal, which was heartily agreed to.

Mr. Waller briefly acknowledged his election, and moved that Mr. Frederick J. Gould be elected Vice-Chairman of the Council. Mr. Gould, he said, had also served many years on the Council, and in due course would make an excellent Chairman. He had done a great deal of work, particularly in connection with the Lighting Section.

Mr. Frederick C. Tilley seconded the motion, which was unanimously carried, and acknowledged by Mr. Gould.

Other Officers.

Mr. Charles Clare was re-elected Hon. Treasurer, on the proposal of Mr. G. H. Pearson Perry, seconded by Mr. Waller.

The appointment of Mr. E. J. Davison as Hon. Secretary was agreed to on the motion of Mr. ALBERT CLIFF, seconded by Mr. R. J. MILBOURNE.

Mr. J. W. BROADHEAD proposed the appointment of Mr. J. WILFRID DRAKE as an elective member of the Council. They were all sorry Mr. Drake was unable to be with them. He had been a very efficient Chairman, and it was their wish to retain his services on the Council.

Mr. C. A. GOODALL seconded the motion, which was passed.

Moved by Mr. CLARE, and seconded by Mr. H. M. THORNTON, Messrs. Albert Cliff, F. C. Tilley, C. A. Goodall, and R. B. Hodgson were appointed elective members of the Council.

The re-election of Messrs. Cash, Stone, & Co. as Auditors to the Society was agreed to on the motion of Mr. R. B. HODGSON, seconded by Mr. GOULD.

The Council were thanked for their services, on the proposition of Mr. CHARLES S. BENNETT, seconded by Mr. ERNEST WEST; and a similar compliment was paid to the Hon. Treasurer, the Hon. Secretary, and the Secretary, on the motion of the PRESIDENT, seconded by Mr. THORNTON.

Mr. MILNE WATSON then proceeded to deliver the following Presidential Address.

GAS AND ELECTRICITY IN RELATION TO UNEMPLOYMENT AND INDUSTRIAL DEPRESSION.

I feel I need offer no excuse for taking as my subject the question of gas and electricity in respect of the services which they are both capable of rendering to the country, as there is probably no subject which is being more discussed at the present time than electricity; and we who are engaged in the gas industry are anxious that the merits of our industry, particularly at such a time, should not be overlooked.

Public attention has been drawn in recent years to electricity rather than to gas, and great prominence is given, in the Press and elsewhere, to schemes for its development. For example, the new electrical super-generating station at Barking, which had a ceremonial opening by H.M. the King yesterday, is very much in the public mind at present. To preserve a correct sense of proportion, however, it should be realized that, to supply to the community the heat energy delivered in gas alone by its near neighbour the Beckton Gas-Works, the Barking super-station would require to have ten times its present maximum capacity. In fact, it may be said that the present capacity of this super-station is no more than the extension required annually by the largest London gas undertaking to meet the normal increase in business. Perhaps the reason why public attention is focussed upon electricity is that its development in certain other countries has been spectacular, that the uses to which it can be put are so varied, and that there is an element of mystery and romance about it.

It is not unnatural in these circumstances that electricity has attracted the attention of politicians to the extent of almost becoming a battle-cry. The Labour Party have taken it up as a promising field in which to try experiments in nationalization, and as a help towards the solution of unemployment problems; the Liberal Party have taken it up in an attempt to revive their political fortunes, and incidentally deal with the problems of fuel utilization and unemployment; and, finally, the Conservative Party have undertaken an investigation into the whole subject.

PREVALENT IDEAS—AND PIOUS HOPES.

Apart from the political aspect of the question, the prevalent idea among Members of Parliament seems to be that it would help to solve the unemployment question in two ways: (1) By employing a large number of men in the production of electrical plant and apparatus, in the laying of main cables, and in the wiring of houses; and (2) that increased facilities for the supply of electricity, piously hoped-for at cheaper rates, would enable industry to manufacture at lower costs, and thus help to recapture the lost markets of the world.

LABOUR'S PROPOSALS.

In July of last year, when the Labour Government were in office, Mr. Snowden, Chancellor of the Exchequer, indicated that it was the policy of his Government to grant subsidies out of the National Exchequer for the development of electricity in this country. He suggested that conferences should take place between the Associations connected with electricity supply and the Electricity Commissioners, in order that agreement might be reached as to the schemes of development which would rank for subsidies—in particular:

(*a*) The establishment of uniform frequency—a figure of £10,000,000, spread over three years, was mentioned in this connection.

(*b*) Government assistance for main transmission lines—"a system of grants to those authorities undertaking approved works individually or jointly, sufficient in amount to make-up the net revenue (after allowing for depreciation or sinking fund) attributable to the particular work, at a rate of interest to be fixed by the Treasury on the expenditure incurred until such time as the net revenue is sufficient to meet the charges, but not more than ten years." This proposal appears to mean that the Government would make good the deficit so long as the works remained unremunerative—with a time-limit of ten years.

(*c*) The development of electricity in rural areas. The then Government suggested that the amenities of country life could be improved. Electricity would serve for the lighting of cottages, and for electrical domestic apparatus. It was even suggested that houses might be wired on something like the hire-purchase system.

The meetings took place, and suggestions were made that the Electricity Commissioners should entertain proposals from the electrical undertakers for trunk mains and general extension to rural districts, &c., the Government to guarantee interest on capital invested for (say) ten years, or until the scheme was remunerative. Suggestions were also made that subsidies should be given for the erection of main transmission lines, overhead distribution lines to small townships, wiring and equipment of premises, and trunk mains for bulk supplies of electricity to existing distributors.

PRESENT PROPOSALS.

At the present time it is announced that the Transport Ministry are working out a scheme, based upon the recent report of Lord Weir's Committee which has been exploring the subject. The matter is to be debated, I believe, to-morrow, and it is understood that the Government intend shortly to introduce a Bill. As a result of all this, it is evident that there is a danger of vast sums of public money being expended in developing and bolstering-up the electricity supply industry in the near future.

AN UNWARRANTED EXCUSE.

It is given as an excuse that this is necessary because the electricity industry has been hampered in the past by statutory enactments, and it cannot be expected to modernize itself at its own expense. I suggest that these handicaps have been no more than in the case of the gas industry; that the real reason is that individual undertakings have developed on lines which are not uniform; and that this is, in the opinion of certain electrical experts, a serious handicap to co-operation between adjoining undertakings. The money, if granted, would be used to defray the cost of the changes-over to standard plant, and to extend distribution to fields hitherto considered uneconomical. It is not to be wondered at, in these circumstances, that considerable surprise, indignation, and anxiety are felt in the gas industry, which is in many large fields the direct rival of electricity.

IN THIS AND OTHER COUNTRIES.

Many comments have been made that the electricity supply in this country lags far behind that of other countries, as regards quantity used, efficiency of production, and price charged. Dealing now with the production of electric current per head of population in various countries, as quoted during the World Power Conference at Wembley last year—viz.:

	Units per Head.		Units per Head.
Switzerland	700	Sweden	364
Canada	612	France	147
Norway	493	Germany	141
United States	472	United Kingdom	139

it will be noticed that the highest figures are attained in those countries in which not only is water power available, but where, in comparison with this country, coal is very expensive. With France and Germany we compare not unfavourably.

It is from the coal in this country that we draw all our supplies of power, whether they are ultimately utilized as steam, gas, or electricity. There is no supply of "white coal" (as water power is commonly called), such as there is in Canada, the United States, Norway, Switzerland, and many other countries. It is possible that in course of time the water resources of Scotland and Wales may be utilized; but these are far removed from the great industrial centres of England, and even if, eventually, the tides are harnessed for the purpose, these sources are not practicable at present. Moreover, it should be remembered that the capital cost of such water-driven installations is much higher than for steam-driven generating stations.

DOUBTFUL ECONOMY OF LONG-DISTANCE TRANSMISSION.

Seeing that water power is not available in this country for large-scale generation of electricity, proposals have been made for the centralization of the production of electricity in the shape of super-stations; but here, again, the trouble is that, if the cost of long-distance transmission is added to the heavy capital charge, it is found that such savings as are effected in the fuel costs are counterbalanced. It should be remembered that in this country it is usually cheaper to convey coal over long distances than to convey electric current.

To quote from the recent address of the President of the Institution of Electrical Engineers: "It is obvious that in a country where coal is dear the advantages of centralization of power production are greater than in a country such as our own where coal has been cheap. As a consequence, the development of electricity supply in countries where water power is available and where coal is dear has been much more rapid than in this country, not, it will be noted, necessarily due to a spirit of greater enterprise, but primarily because it was the best or only economic solution of the power problem."

What is essential to a country is a cheap supply of power, light, and heat. It is assumed by far too many people in this country that the prosperity of the country should be judged by

the quantity of electricity consumed. I, on the other hand, consider that, in judging the country's resources, all circumstances must be taken into consideration, because upon the nature of such resources will depend the lines upon which development can take place with the greatest advantage. This is not generally realized.

The Service Rendered by Gas.

In this connection, I would now draw attention to the magnitude of the service rendered by gas to the community in this country. In Great Britain the consumption amounts to 275,000 million c.ft. annually, which equals approximately 1320 million therms; and taking the population at an estimate of 47,350,000, this works out at 28 therms per head of the population. The amount of electric current required to do the work actually performed by this quantity of gas in its various uses by the public is calculated at 487 kw.h.—that is, units—per head of the population. Therefore, the service given by gas *per capita* in this country exceeds that given by electricity in the United States of America. If one adds the heat energy supplied by gas undertakings in the form of coke, the figure per head of population is more than double that quoted. It is worthy of note that, although gas manufacture has not developed in the United States of America in the same proportion to the population as in this country, partly owing to the fact that supplies of natural gas have become available, it is making great progress, having increased by no less than 33 p.ct. during the last six years, in spite of the intense electrical development of that country. I am not claiming, of course, that gas can be used with advantage for every purpose. There are instances in which electricity is specially adapted—such as railway traction, power distribution to a large number of units (we use electricity in gas-works); and for lighting it has its special uses. On the other hand, there are purposes for which gas is peculiarly suited; and in these fields, in which gas is mainly used, there is no advantage in changing-over to electricity. In fact, positive disadvantages to the nation would accrue if such a course were adopted, as I shall show. For example, heating, industrial or domestic, and cooking are fields in which gas far out-rivals electricity.

The Bye-Products which are Lost in Generating Electricity.

Moreover, in dealing with this question, it must not be overlooked that electricity produces no bye-products. Gas manufacture produces per annum (1924)

9,000,000 tons of smokeless fuel—viz., coke.

172,000,000 gallons of tar, which in distillation provide:

Prepared road tar.	Beta naphthol.
Carbolic acid.	Salicylic acid.
Creosote.	Anthracene.
Naphthalene.	Pitch, &c.

167,000 tons of sulphate of ammonia (one of the chief agricultural fertilizers), cyanide, and other bye-products.

Thus the gas-works recover all the valuable bye-products from the coal, including the raw materials for dyes, drugs, disinfectants, benzole (the only home-produced motor fuel), fertilizers, &c., which are destroyed when coal is burned in its crude state, as in electrical generating stations.

Coal Conservation *v.* Coal Wasting.

This brings me to the all-important question of the conservation of coal. The comparative thermal efficiencies of gas and electricity works are such that, of every 100 heat units in the coal used, the most efficient electric generating station utilizes only 20 p.ct.—a loss of 80 p.ct.—whereas in efficient gas manufacture the loss is only 15 p.ct. That is, gas-works can supply to the community as gas, coke, and chemical products, 85 p.ct. of the total heat value of the coal. It is clear, therefore, that in utilizing to the best advantage the nation's coal supplies, gas is playing a far more important part than electricity, and gives to this country distinct advantages over a country which depends entirely upon electrical power and heat.

State Subsidies Wrong in Principle.

In my view, the granting of subsidies to industry—especially to industries which are sheltered—is wrong in principle. The gas industry was built-up in face of tremendous opposition and prejudice, and in face of many restrictions of a statutory character, many of which exist at the present moment. Yet in Great Britain the gas industry is certainly as efficient as that of any country in the world. On the manufacturing side, large sums of money have been spent in modernizing plant to keep pace with the better practice brought about by experience and greater knowledge, and on large mains in lieu of small ones to deal with increased loads and with the increased volume that altered conditions in manufacture and utilization have necessitated. All this has been paid for by the gas industry itself. What is the matter with electricity? It is true that per head of the population there is not so much electricity used; but that is because in this country industrial development commenced earlier, and has been along other lines, and to a great extent electricity is in competition with other forms of power already in being, instead of having, as in some countries, a virgin field for development.

The question at once arises, Why should not the electrical industry itself pay for any improvements in the method of the generation and distribution of current? The electricity industry cannot possibly be termed a "depressed" industry, as I shall clearly prove. We are also entitled to ask, from the country's point of view, What advantages, if any, are there in these alleged "improvements"? For instance, is a policy of erecting large super-stations, linked-up all over the country, a sound policy for Great Britain? Will super-stations provide electricity much cheaper than smaller sources of electricity?

Super-Stations Not Necessarily the Most Efficient.

In the recent report issued by the Electricity Commissioners, it is recorded that the highest thermal efficiency was obtained by a small internal combustion engine station. For steam-operated plants the best efficiencies are by no means confined to the super-station; but, in any case, where improvements have been effected in the over-all thermal efficiency, they are so small as to have only a slight effect upon the cost to the ordinary consumer. This is because the cost of distributing mains and apparatus is high, and in the case of intermittent use, as for lighting, distribution may be said to add 300 p.ct. to the cost of generating.

Concentrating the generation of current at super-stations entails long and expensive high-tension lines and losses of power. This is the reason why it is more economical to bring coal from (say) South Wales to London for the generation of electricity than it would be to establish generating stations at the coal-fields and transmit the current. The cost of generation at super-stations, *plus* transmission to switchboards of existing distributing centres by the proposed national system, has been placed by one of its advocates at 0·6d. per unit. Many of the great centres of industry have already electric supplies generated at this price, and have, therefore, little advantage to look for. It would appear that it is only districts uneconomically situated which would benefit, at the expense of the State, by what is proposed.

Possibly in future developments centralized production will offer advantages in the better utilization of capital, more skilled operation, and pooling of the load; but, even if it were so, why should the State provide money for this purpose? There are many other industries which have been hampered in the past by legislation and other obstacles, and which have become old-fashioned, and are not able to compete favourably with their trade rivals. Is it sufficient to prove that modernization is needed for grants to be received from the State? If Parliament does insist on subsidies being given, they should be given only by way of loans; and, in fairness to other rival industries, loans should be given to them on similar terms. ["Hear, hear."] But as this means that the requirements of every industry should be on the same basis, it would be much better if there were no subsidies at all.

Electricity in No Need of Subsidies.

I now ask for proofs that the electricity industry is financially embarrassed. To judge by the available figures, there are no signs whatever of this. "Garcke's Manual" gives the average dividends on ordinary capital of 176 electric supply companies in 1914-15 as 4·04 p.ct., and of 194 companies in 1923-24 as 7·33 p.ct.; and, in addition, there is evidence of large increases in reserve funds. Such up-to-date figures as are available give even greater evidence of prosperity. Take, for example, a number of the London Companies:

—	Amount to Reserve.		Dividend	
	Pre-War Year	Post-War Year.	Pre-War.	Post-War.
	£	£	P.Ct.	P.Ct
Charing Cross Company—				
West-End undertaking	22,000	46,000	5	15
City undertaking	18,000	93,000	*Nil*	10
Chelsea	14,000	32,000	5	12
Kensington	8,800	33,000	9	15
London Electric	33,000	63,000	4	10
Metropolitan	23,000	206,000	3½	11
City of London	51,000	184,000	9	15
South London	7,500	67,000	5	15
South Metropolitan	15,000	119,000	*Nil*	15

These facts indicate that the electrical undertakings must be in a position to attract all the capital required for legitimate and useful expansion of business. ["Hear, hear."] We cannot but suspect that the real reason for State aid being sought for the electrical industry is that there is a body of persons in this country who wish to see an expansion of electricity apart from any economic consideration, and are anxious, therefore, that for this purpose the taxpayer should bear the burden. There are no signs of lack of funds for remunerative schemes, or that the industry is unable to shoulder its own burdens. If the electrical industry is to be bolstered-up and given unfair advantages, it is a very serious matter for the gas industry.

The National Importance of the Gas Industry—in War and Peace.

The country cannot afford to neglect the gas industry. Gas is the best and most natural way to use coal in this country for a great variety of purposes, and in it and its bye-products lies the

solution of the smoke problem. It will be remembered that during the late war it would have been impossible to provide the high explosives necessary to carry on without the aid of the gas industry; and in times of peace it is no less essential to the conduct of other industries.

If the gas industry were to be prejudiced by the unfair competition of a subsidized rival, and people were to be induced to use electricity by the provision of a cheap supply of current at the cost of the public generally, and incidentally at the cost of the gas industry as members of the public, a great injustice would be done to our industry. ["Hear, hear."] Municipalities alone have expended capital to the extent of £58,000,000 in their gas undertakings, which are perhaps the most successful examples of municipal trading. If they are to be exposed to the competition of a State-aided rival industry, whatever damage is done to their interests will fall eventually upon the ratepayers.

There are 312 municipal electric supply undertakings, with authorized loans totalling £108,331,266, and 150 municipal electric traction undertakings, with authorized loans amounting to £78,258,120. Speaking of municipal undertakings, in cases where the generating costs of these undertakings exceed those of the current supplied by a super-station, they would, under the national scheme, so far as we know, be compelled to shut-down their generating plant. The interest on the capital of the plant thus thrown idle would have to be reckoned against the reduction in the cost of current. In the case of companies similarly affected, it is apparently the intention to compensate from State funds.

Gas Employs Far More Labour than Electricity.

If we were looking at this question merely from the point of view of unemployment, it is interesting to note that the gas industry employs more than five men for every one that the electricity industry employs for the same output of heat energy. Therefore, the bolstering-up of electricity, should it bring about a reduction in the amount of gas consumed, would put the country in no better position as regards employment in these two industries taken together.

The same remark applies to the associated industries which the Society of British Gas Industries comprises. They employ labour on a very extensive scale in the manufacture of plant, machinery, apparatus, and materials in connection with the manufacture and utilization of gas and its bye-products. The quality of their work has been kept up-to-date and on a high plane by standardization of essentials and by healthy competition. Their work is of national importance in that it is helping to attain the greatest efficiency in the development and application of the stored-up energy in coal; also, in that many of these British firms have been able to compete successfully in the markets of the world. This progress has been made without financial aid from the State, direct or indirect; and now, if State subsidies are to give an unnatural fillip to electricity, any increased employment there may be in the manufacture of electrical apparatus is bound to be negatived by a corresponding reduction in our own associated industries. The Society of British Gas Industries, like the parent industry, asks for nothing more than fair competition and natural development on economic lines. ["Hear, hear."]

Cheap Electricity Fails to Cure Tyneside Depression and Unemployment.

The belief that the development and increased supplies of electricity will remove unemployment in other industries in this country is entirely fallacious. There is no greater depression at the present time than on the North-East Coast, where there are the largest super-stations in this country, belonging to an electricity undertaking probably as up-to-date and efficient as any in the world, supplying cheap electricity over 1400 square miles of industrial area. Although the mining, steel, shipbuilding, and other industries have availed themselves of this cheap electric supply, it cannot lift them out of the abyss of depression in which they find themselves; it represents too small a proportion of their total working costs. In shipbuilding, marine engineering, locomotive building, and iron foundries, the cost of electricity represents under 1½ p.ct. of the total working costs; so that any reduced price of current cannot materially affect the present abnormal conditions. It is stated that recently, in connection with a contract for eight new ships for the Blue Star Line, where the total expenditure was to be in the neighbourhood of £2,700,000, foreign tenders were no less than £300,000 below those of British firms.

Hopes Doomed to Disappointment.

The Prime Minister has said that "we consume less units of electrical power than countries far inferior to our own in industrial production," and that "there is no doubt that to-day we are paying infinitely too much for our light and for our power." I would point out, however, that in the case to which I have referred a cheap supply is available; but it is obvious that this is not sufficient, and that even if electrical power were supplied free of cost it would not make good more than one-eighth of the discrepancy in these shipbuilding tenders. The causes of unemployment go a great deal deeper than the cost of electricity; and those in responsible positions should hesitate before they put their faith in the proposition that electrical power, however cheap, will re-start trade and solve the unemployment problem in this country. ["Hear, hear."]

These remarks are made in no spirit of the dog in the manger. Electricity has its uses, as well as gas, and we have no ill-wish towards our rivals. We maintain, however, that they should not be unduly favoured by the State as against gas.

The latent energy stored in coal is the greatest natural asset in this country, and upon it depends our ability to hold our position in the civilized world. Already the exhaustion of the more cheaply-worked seams is in sight, and the need for conservation is very urgent.

Electricity Wasteful of Coal.

The approximate consumption of coal for domestic purposes in this country is in the neighbourhood of 35 million tons per annum. Prof. Cobb has shown that, assuming only one-quarter of the heat in the coal thus burned is usefully employed, to supply this heat by electricity instead would require, on the most optimistic assumptions, approximately 55 million tons. Now the same amount of heat supplied as smokeless fuels—gas and coke—by gas-works would require under 30 million tons. Thus the adoption of electricity, if it could be universally adopted, would mean the additional expenditure of 20 million tons, as compared with a saving of 5 million tons by the gas-works solution—a difference in favour of gas manufacture of 25 million tons of coal, *plus* the valuable tar and ammonia products required for other industries, which would be as much a loss in the process of electrical generation as they are in the present domestic practice of sending them up the chimney.

It would be nothing short of scandalous to allow State funds to be given to foster the use of a far less efficient medium, and so deliberately encourage waste of the national resources. [Applause.]

Sir Arthur Duckham, in proposing a vote of thanks to Mr. Milne Watson for his address, and for his services to the Society, said the President was worthy of all the praise that one could give to him; but they in the gas industry knew that in Mr. Milne Watson they had the leader, the head, of their industry. They knew the burden upon his shoulders, and all that he had done for the unification of the industry; and they knew that in a time of crisis like the present, in industry in general, and in the fuel industries in particular, Mr. Milne Watson would follow-up the work that he had done. He felt certain that the address just delivered was the most vital Presidential Address to which they had ever listened; and it was an address which was greatly needed to-day. Friends of his had come to him and asked whether they should sell gas shares, as gas was finished, and there was nothing left but electricity. In fact, an entirely false position had been built up in this country by the present cry of electricity for everything. As a matter of fact, the country did not want electricity; it did not really care about electricity. What this country wanted was a cheap and efficient supply of energy, in whatever form it might be, suitable for its requirements; and the great danger of the present situation was that inquiries, such as Lord Weir's Committee, had been only on the basis of electricity, and had not been on the basis of the general fuel position of the country—which should be the basis of any inquiry. It seemed to him a terrible thing to crystallize generation of energy on an 80 p.ct. inefficiency, or 20 p.ct. efficiency, such as was entailed by the proposed super-power stations. Surely this was not a time for great expenditure, but to make the best use of what one had got. There was much in this country that should help to cheapen power. As to unemployment he was entirely at one with the President. A case had come under his notice of two similar jobs in England and America. The wages in America were just four times the English rates; but the cost of the job was actually the same—showing that the output of the American worker was four times the output of the English worker. This extra output was not due to an electric motor being attached to each worker. Naturally, one wondered what the Government were going to do about electricity. Inquiries had been held; but all one knew as to the results was that the electrical engineer walked about with his tail up, and when asked what was going to be done replied: "Wait and see, but it is something pretty good." One feared the Government had made up their minds before the question had been put forward for discussion, and that thus the thing might be rushed through without properly weighing matters up. This must be bad for the country, the whole situation having only been considered from the one point of view. They must all feel frightened that some very grave error might occur, unless there was proper time for consideration and consultation upon these matters. Finally, as far as one could see, an entirely bureaucratic scheme was foreshadowed. They had seen a little of the present Electricity Commissioners. A works wanting to put in a gas engine and dynamo plant was referred to the Electricity Commissioners—although it was a gas-works—and an attempt was made to force the Company to take their power from the electricity station, though the price would have been far higher than that at which they could generate the current on their own works. It was foreshadowed that the Commissioners in London would have absolute control of the generation of electricity throughout the country. It would be a magnificent thing for the gas industry if they did. Nothing could kill an industry more surely than such control from one central authority. Any attempt to

rush a scheme through without considering the matter from all points of view must be disastrous. Mr. Milne Watson had a very hard year in front of him in every direction; and he wished to tell him on behalf of the members that he had the hearty support of one and all of them. ["Hear, hear."]

Mr. Waller said he was very pleased to have the opportunity of seconding the vote of thanks to the President for his very able address on the subject of electricity, and for his services to the Society during his year of office. On every occasion when it was necessary to consult him, he gave them the impression that the work of the Society was the only subject of any importance to him at the moment, though they knew how overburdened he had in reality been during the last year with other urgent affairs.

The vote having been carried with acclamation,

The President remarked that it had been a great pleasure to him to be associated with this very distinguished body of industrialists. He was sure he had learned as much from them as they could possibly have learned from him; and his year of office had been a singularly pleasant one. In the gas industry, whether on one side or the other, their great object was to pull together for the general good. With regard to the subject of the address, this was certainly going to be a pressing question for them during the next twelve months. It was not going to be disposed of by one speech from the Presidential Chair of the Society. This electricity "stunt"—if he might so term it—had got a great hold on people, who forgot altogether that gas had already done more in the direction of smoke abatement than electricity had ever done or was ever likely to do. The chief offender in this respect was the domestic chimney; and it was the gas undertakings that could, and did, deal with them. The gas industry was going to do away with the smoky atmosphere of the towns. Providence had put this work into their hands to do. Members should never cease putting the whole matter before people in influential quarters, and trying to get them to see the error of their ways. In the first place, to do as was proposed would not solve the problem of unemployment; and, secondly, it would be an act of injustice. There were able men in the electrical industry who were quite capable of raising any money that was really necessary. It was the business of the gas industry to expose the folly of the proposals now being made.

The New President.

The President (continuing) said it was now his very great pleasure to present to them the new President, Sir Alfred Mond. [Applause.] It was hardly necessary for him to introduce that gentleman to them; his name was a household word all over Great Britain, and among gas people it was well known. No one had rendered greater service to this country in commercial matters than Sir Alfred Mond, and they looked to him as one who understood some of their problems. If the Government would only consult Sir Alfred, he himself had a scheme for dealing with unemployment which was probably a great deal better than the electricity one suggested by the Government. They were all honoured that such a distinguished public man had found time, among his numerous other duties, to accept the Presidency of their Society.

The Right Hon. Sir Alfred Mond, Bart., M.P., said he regarded it as a very great honour indeed that they should have so kindly elected him to this responsible position. He felt, however, a much greater sense of trepidation than would otherwise have been the case, because he was succeeding in office such an expert in all gas questions as Mr. Milne Watson, to whose masterly address they had just listened. This address showed that Mr. Milne Watson combined, with great technical and commercial ability, also statesmanlike qualities. As for himself, his connection had been more with the furnishing of cheap power by means of producer plants and gas engines, and with a firm well known among gas engineers—Messrs. Ashmore, Benson, Pease, & Co., of Stockton-on-Tees—in supplying plant for gas-works. He did not wish to enter into the very large subject which the address had opened up. He would say, however, that politicians were well known to be ignorant men on technical matters. [Laughter.] He heard people talking gaily about super-power stations who did not know the difference between a volt and an ampère, and who had never seen a dynamo. "Super" meant nothing at all to any technical person. The question of whether large apparatus was preferable was one of pounds, shillings, and pence; and there was a great deal to be said on the side of limitation of units in all forms of plant. For instance, there was the question of spare plant and parts. One could easily develop to a size where the capital outlay in this respect became so high that, when they took this and depreciation into account, the financial results would be worse, though the technical results might be a little better. Politicians, as he had said, were not, on the whole, very well acquainted with technical subjects. Electricity had come much to the fore in countries where water power was cheap and coal dear. But the assumption that they must necessarily follow the same course in this country had always seemed to him to be quite unwarranted, unless they could demonstrate that other conditions intervened. He was rather surprised that it had been so long before they had a paper of this character, and that so little publicity had been given to gas; and he would very much recommend that a copy of this address should be sent by the Society to the Prime Minister, to Mr. Lloyd George, and to Mr. Snowden, as well as to Members of Parliament generally ["Hear, hear"], so that they at any rate would have this aspect of the case presented to them. Gas had been established so long that people had lost interest in it; electricity was a newer baby, and therefore likely to attract more attention. The position of the gas industry, its importance to the country, its functions in relation to domestic heating and lighting, and its industrial uses, should be thoroughly recognized by those who were responsible for dealing with a complex problem presenting so many aspects. If he could render any assistance to the gas industry, he would be only too pleased to do so.

ANNUAL DINNER.

Later the members and a large number of guests met again in the Hotel Cecil, where just over one hundred sat down to the annual dinner, and spent a thoroughly enjoyable evening. Perfect arrangements, backed up by topical speeches and some charming musical items, made the occasion a memorable one alike to members and guests. The President (Mr. D. Milne Watson, D.L., M.A., LL.B.) was in the chair; and on his left hand there sat the Right Hon. Sir Alfred Mond, Bart., M.P. (the President-Elect), Sir Arthur Duckham, K.C.B., M.Inst.C.E., Mr. William Cash, F.C.A., Mr. Samuel Cutler, A.M.Inst.C.E., M.I.Mech.E., Lt.-Col. C. F. T. Blyth, C.M.G., LL.D., Mr. Frederick C. Tilley, M.I.Mech.E., Mr. Thomas Hardie, M.Inst.C.E., Mr. J. W. Broadhead, M.I.Mech.E., Mr. Philip G. G. Moon, Mr. J. Conway Davies, and Mr. Arthur L. Griffith. To the right hand of the President were: the Right. Hon. Sir Hamar Greenwood, Bart., K.C., M.P., Mr. B. B. Waller, Assoc.M.Inst.C.E., Mr. J. Ferguson Bell, M.Inst.C.E. (President of the Institution of Gas Engineers), Mr. Frank H. Jones, M.Inst.C.E., Mr. Charles Clare, Mr. R. W. Foot, Mr. Douglas H. Helps, Assoc.M.Inst.C.E., Mr. F. W. Goodenough, Mr. Henry D. Madden, M.Inst.C.E., Mr. Cyril G. Davis, M.Inst.Mech.E., and Mr. John Terrace, M.Inst.C.E. The programme of music was arranged by Miss Millicent Russell. The toast of "The King" having been honoured,

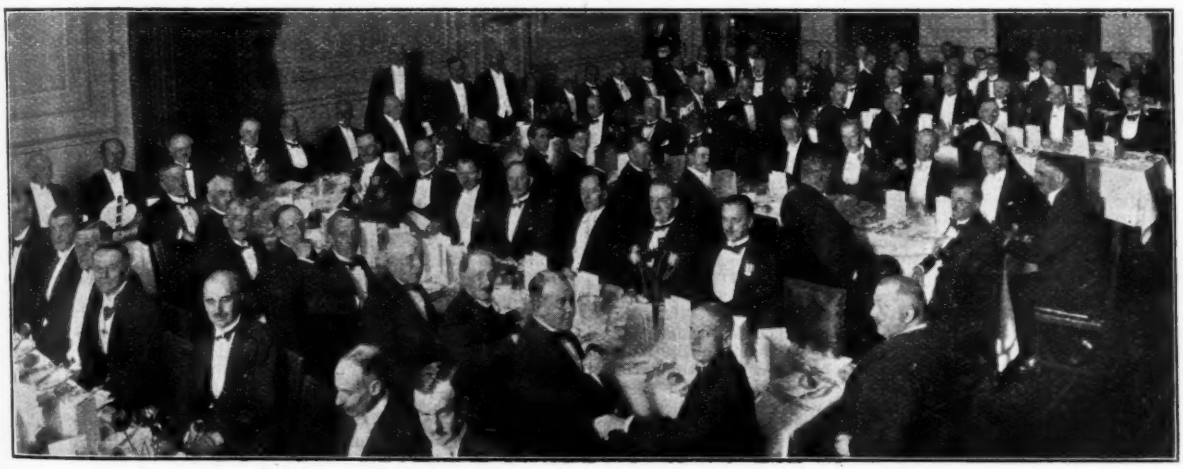
The Society.

The Right Hon. Sir Hamar Greenwood, Bart., K.C., M.P., said fate had decreed that he should be their guest that night, and propose the toast of "The Society of British Gas Industries." He appreciated the compliment of being invited to do so. At the same time, he must frankly say he could not possibly have a tithe of the knowledge of these great industries which was possessed by the youngest of the members. But he could say something in a general way. He wished to say something of the President, who would respond to the toast, and who spoke with the prestige of a knowledge of the subject which was possibly unrivalled; and he wanted also to say something—and here he could speak with most intimate knowledge—of the President-Elect. Sir Alfred Mond and he had been a great many years in Parliament together. They had sat in the Cabinet which he (the speaker) still thought was the best Cabinet that had ever presided over the destinies of this country; and he was sure that his friend agreed with him. He felt bound to say of him that, if they were to choose half-a-dozen of the leading business men of the great parent country of a great Empire, Sir Alfred Mond would be one of them; and he thought he could say that Sir Alfred was one of the outstanding and illuminating enrichments of the commercial and political life of the country. He (the speaker) was not agreeing with him every time now; and it did not necessarily follow that he (Sir Hamar) was wrong. But he was bound to confess this—that, if he were right, Sir Alfred could put his case with a facility, eloquence, and conviction that he regretted he could not himself equal. However this might be, he congratulated the Society upon having as their President-Elect a distinguished statesman and a leader of industry, not only in this country, but in the Empire, who could stand up in the House of Commons and command the attention of that difficult and hypercritical, and not always—should he say?—knowledgeable, assembly, on industrial matters. As to their President, it was to be regretted in some ways that he had left the noble profession of the law to become Governor of the Gas Light and Coke Company; and that, instead of hanging criminals who should be hanged, he spent his time in declaring fine dividends and increasing reserves. [Laughter.] He did not know whether he was always satisfied to be the distinguished Governor, and the successor of a great many distinguished Governors, of the Gas Light and Coke Company, or whether he regretted sometimes that he was not able to put on a black cap and do something for somebody. Now he had always thought himself that the history of the gas industry represented one of the greatest tests—and successful tests—of British character. He had taken occasion to read it up, although in days gone-by he knew well the late Sir Corbet Woodall, who was one of the most enthusiastic members of that Society, and one of the leading men in the gas industry of the country. He had always thought that from the earliest days of this industry, which had commenced over a hundred years ago, it had had to wage a constant fight to overcome ignorance and break-down tradition; and in the more recent years they had had to fight a competition which was already severe, and might grow still severer as time went on. They found that the celebrated Duke of Wellington to the day of his death believed in candles; and as long as he was in authority, he insisted upon every soldier continuing to carry candles in his knapsack, as he had done in the days of Marlborough and at Waterloo. Prejudices died hard in those days, and even now; but this could be said—that here in this little island the gas industry commenced, and through English engineers and English capital it spread throughout the whole of Europe, and to other parts. There was a time, he supposed, when hardly a town of importance in Europe did not have its gas plant put down by the capital of English investors. ["Hear,

hear."] This was a great compliment to the originality, and more particularly to the tenacity, of the people of our race.

UNITY IS STRENGTH.

They had now organized themselves into a Society, and he would like to say just a word or two on this. He did not believe it was possible in this modern world—with industrial competition growing ever more fierce—for any industry, or group of industries, like theirs, of many different kinds, to exist unless they united, and had a common purse, with a common object, to fight common competitors outside their realm. He thought, therefore, they were wise to unite together as they had done; and if he had his way, he would have all industries in this country united in a similar manner. He had recently returned from another great industrial country, Germany. It would be an impertinence for him to quote his opinion against those of the great bankers and the great industrialists; but he was going to do it. He believed that Germany was working to-day with a zeal, with an energy, with a cohesion, and with an intelligence that in five years—no longer—would again place her at the very top of the commercial interests of Europe; and not only this, but would again make her the predominant military power. Those who sat here in wonderful, splendid, lovely England seemed to be more on the defensive than were the people in that great competitive Germany; and in this rough world of economics, it was not because a country was beautiful or the people lovable that they would necessarily succeed. They were faced at this moment with competition from Germany which he did not believe one man or woman in a hundred realized. The members of that Society at least were wise, and were doing what they could in every way to meet what he thought would be the severest competition that would come from Germany, and which had already started to come. He would couple with the toast the name of the President who was just retiring. Mr. Milne Watson represented a Company who all through their long career had stood, as he (the speaker) thought, for the best interests of the community they had so faithfully served. One of the prejudices they must all try to break-down was that the success of a gas or similar company meant that it was militating against the welfare of the community. On the contrary, it was in the interests of the community that it should succeed, and richly succeed. The President was at the head of the oldest Gas Company—a position which everybody envied him, but all agreed that he could adequately and efficiently fill. He apologized for not being able to pay more eloquent tribute to the Society, but he wished it every success.



SOCIETY OF BRITISH GAS INDUSTRIES ANNUAL DINNER.

"WHA DAUR MEDDLE WI' ME?"

The PRESIDENT thanked Sir Hamar Greenwood for the kind way in which he had proposed the toast of the Society, and said he was very proud indeed to be in the chair to reply to it. He had delivered himself that afternoon in a serious vein on the coming struggle between gas and electricity; and he did not intend to take up any more time in a diatribe on that subject. He himself was absolutely convinced of the truth of what Sir Hamar had said about the necessity of joining together; and he knew those present were quite in agreement with him. To-day, if they meant to hold their place in the industrial world, they must combine or unite for the purpose of common defence. If they were not as an industry combined, and prepared to make their united voice heard, they would go under. He was preceded by a very distinguished man, Lord Weir, who was at present engaged on the subject of electricity; and he was going to be succeeded in the chair by Sir Alfred Mond, who, on the question of residuals, had views of his own, which were not the views of the gas industry, and certainly not the views of the Gas Light and Coke Company. Thus he found himself in the position of being sandwiched between an electrician and a new President with his own opinions on chemicals and residuals. In these circumstances, he would suggest, as a suitable motto for the gas industry: "I'm wee Jockie Elliot; Wha daur meddle wi' me?" After all, there was no doubt that the fact that they in this country did not always get on very well together led partly to the strengthening of the national character. They knew how to fight and how to be friends; and although they had differences, they still remained friends. It was one of the characteristics of the British nation that they knew how to fight and how to remain friends; and though they might differ on certain questions, yet at the same time there was a friendly spirit, they could meet together, and President could succeed President, all working as they believed for the good of the nation generally. For his own part, he could assure them that he had been very proud indeed to be President of the Society. No duty had been more pleasant; and no time had passed more quickly. He had in his own work been helped very largely by their advice and by their support; and he hoped that after his retirement from the chair they would always allow him to remain with them in sentiment and in feeling.

Before sitting down, the President announced the receipt from the Lord Mayor of Manchester (Alderman Fred. J. West) of a telegram expressing regret at his inability to be present owing to a special Council meeting, and sending best wishes and greetings.

Mr. B. B. WALLER submitted the toast of "Kindred Associations;" remarking that it was very gratifying indeed to the Society to have so many representatives of other organizations with them that evening. It indicated the existence of that spirit of good fellowship which was so essential to their general welfare. It was not his intention to enlarge on the activities of these various Associations. The good work they were doing was well known to all of those present, and was very highly appreciated. He was pleased to know that they had with them, as representing the parent body, Mr. J. Ferguson Bell, the President of the Institution of Gas Engineers, and Presidents, &c., of different District Associations, representing that great body of gas engineers who were ever pressing the members of the Society for plant of increasing capacity to meet their growing needs. Then they had with them their esteemed President, as representative of the National Gas Council. One need be only a very minor member of that body—as he (Mr. Waller) himself was—to realize the extraordinary amount of useful work that was being carried out by them. Then, again, there was the child of prodigious growth, with the insatiable appetite, who was always asking for more—the British Commercial Gas Association. The "B.C.G.A." had been well represented there that evening by their old friend Mr. F. W. Goodenough, who, by the way, he was sorry to say, had been obliged by indisposition to leave them. Mr. Goodenough's name was synonymous with great achievements. One had only to go to Wembley and see that great Gas Exhibit to realize the results of the efforts of the "B.C.G.A." There one could visualize the spirit of gas extending to the utmost limits of this great Empire. They offered to the representatives of kindred Associations a very warm and cordial welcome. It was good that on occasions such as this they should foregather and promote that unity of spirit and co-operation which were so essential to the welfare of the great industry with which they were all associated.

Mr. J. FERGUSON BELL said he had joined them that evening, as representing the Institution of Gas Engineers, with the greatest possible pleasure, and he was certain that this applied also to the other representatives of kindred Associations. The President-Elect of the Institution of Gas Engineers, Mr. C. F. Botley, would have accompanied him, but had had to go to Leeds to attend some very important meetings in connection with their business. He (Mr. Bell) was mindful of the useful work that had been done by the Society of British Gas Industries, which he believed was formed in order that the members might get to know each other better. As they knew each other better, so he ventured to think they would appreciate each other better; and it might also perhaps help them to deal with those gentlemen that he (Mr. Bell) represented. [Laughter.] But, seriously, he was one who believed that there was no great gulf between the producers of apparatus and the users of that apparatus; and he would say, there and then, that he owed great thanks to various members of their Society for assistance rendered him over a long period of years. Personally, he believed that there was no indebtedness on either side. The manufacturer and the user were indispensable one to the other; and it was gratifying to know that there was a friendly feeling between them. He thought, speaking for himself, that the Society of British Gas Industries and the Institution of Gas Engineers might become more closely associated with advantage to both. ["Hear, hear."] An interchange of views must be always beneficial. Of course, when the makers of apparatus placed their views before gas engineers, the latter did not always agree with them. In fact, they sometimes thought the makers took a limited view of things, especially in the matter of prices. [Laughter.] But the makers might

also think that the engineers took a limited view of the position; and so it was well that they should know each other, and that they should be able to realize the difficulties each had, and their limitations. The material welfare of this country was very closely bound up with the engineering and chemical industries; and anything that could be done to promote the interests of these two great branches was to the benefit of the community at large. Therefore he was glad to be with them, to say how much gas engineers appreciated the efforts the Society were making. Unity was strength; and the members were wise to combine together to make productive efforts.

THE PROBLEM OF TO-DAY.

English manufacturers for too long a period had been dissociated; but now they had come together, and there was no reason why they should not help one another, as gas engineers did—though, of course, there was no rivalry as far as gas makers were concerned, except rivalry in giving the best service they could to the community. There was no doubt that what they were all suffering from at the present time was the acute unemployment question, which was possibly the most difficult problem they had to deal with to-day. On his way up to town that day, it had been with the greatest possible pleasure he had read a leading article in "The Times" with reference to the proposals of the President-Elect for dealing with this labour question. Sir Alfred Mond had put forward what he (Mr. Bell) ventured to think was a statesmanlike view of the situation. ["Hear, hear."] He hoped the Government would give very serious consideration to the question of subsidized wages. As "The Times" pointed out, Sir Alfred Mond had performed a valuable public service. The obvious advantages of maintenance with work, as against maintenance without work, must be recognized by all parties. It was easy to criticize; but he hoped the politicians, instead of looking for difficulties, would give the proposal a fair trial, and see what could be done. Everyone must realize that the dole was demoralizing to the manhood of the country, and was making men work-shy. The question of unemployment was one that the manufacturers had got to meet in some way; and to do so they would have to produce goods at such a price as potential buyers could pay, and as would enable them to hold their own against Continental and other competition. Sir Hamar Greenwood had pointed out that they would have to meet more severe competition in the future than in the past; and he felt quite certain that what he had said with reference to Germany was true. It must be realized that, now the war was over, this country was poorer, and the people would therefore have to work harder in the future than in the past. What was necessary was a drastic curtailment of expenditure. Certain trades and industries were being taxed, Imperially and locally, out of existence. Costs must be cut-down, so that they could hold their own with competitors. The gas industry feared no competition, so long as that competition was fair; and he did hope that those gentlemen who were prominent in Parliament would see that gas, as an industry, had a fair field—which was all they asked for. They did not want any favours.

President-Elect's Industrial "Medicine."

Mr. Frederick C. Tilley proposed "The New President," and said that Sir Alfred Mond did not need any introduction to them. He was so well known throughout the whole world that they did not need to be told who or what he was. They welcomed him heartily, and thanked him for becoming their President. ["Hear, hear."] During the life of the Society, they had had many illustrious men as President—great engineers, great industrialists, representatives of the law, and of medicine—and now they could congratulate themselves, when they considered the record of Sir Alfred Mond, that in him they had a President who combined the whole of these qualifications, with the exception, perhaps, of that of medicine. He did not think he had taken any part in medicine of the usual kind; but he had during the last few months endeavoured to introduce "medicine" to the industrial world, in the shape of a very daring scheme for improving the lot of everyone in the country. The proposal Sir Alfred had brought forward was one which he hoped would have very speedy attention, because something of the kind had certainly to be undertaken to bring about the necessary change in existing industrial conditions. He hoped it would be possible to give the scheme a trial; and Sir Alfred Mond was heartily to be thanked for bringing it forward at a time when it was evident that something must be done to cope with this urgent and difficult problem. He was sure they had only to look to their new President for guidance, and they would receive it, and would be proud to receive it, from one who was so eminently well qualified to give it.

The Right Hon. Sir Alfred Mond, Bart., M.P., thanked Mr. Tilley for what he had said, and also his old friend and colleague Sir Hamar Greenwood for his kind words. He and Sir Hamar had worked together under conditions of great strain and difficulty—and when the latter occupied a position, not only of great responsibility, but of great personal risk, in being Chief Secretary of State for Ireland; a position in which he showed that determination and that great courage for which he had always been distinguished. He also wished to thank Mr. Ferguson Bell for his sympathetic allusion to the scheme which he (the speaker) had put forward after much consideration for dealing with the problem of unemployment. It would take up too much time, and it was scarcely the opportunity for him to go into the scheme in any detail; but he would just like to say that he was quite convinced the country could not afford to go on sitting still and doing nothing. ["Hear, hear."]

HELP FOR BRITISH INDUSTRY.

He, like many others, had been hoping against hope that trade would resume its normal conditions, and that no extraordinary measures would be required to get them back to the position in which unemployment would be once more reduced to manageable proportions. Anybody who looked into the matter must have realized that year after year the unemployment figures of this country remained of an alarming magnitude. Anyone engaged in industry must have felt that there was being deteriorated month by month, week by week, and day by day, the material on which they would have to rely if industry was to improve. The fundamental questions were: Could they afford to take the risk of being unorthodox, and to adopt a scheme which might or might not produce inequalities between one firm and another; or could they afford to allow things to go on as they were to-day? Could they afford to see their human material deteriorate? Could they afford to allow a whole generation of young people to grow up who had not known what work was since the war—people who, if they went on much longer as they were going on now, would never be of any use for work, and would remain a burden on the community for life? The question of which method would be the best to adopt, needed discussing. If anyone had a better plan than his, he would not wish to stand in the way; but nobody up to now had produced a better method. They had to struggle to-day in the markets of the world, with great handicaps. He was not concerned with which firm here got an order; but he was concerned that somebody in this country secured it, and not somebody in another country. ["Hear, hear."] His scheme would help in many directions those who were engaged in industries such as were represented there that evening. The firm he was connected with, who specialized to some extent in large gasholders, had, he was glad to say, a very good order for Montreal, and were engaged on similar business in Toronto. He was pleased, when over there recently, to hear how anxious they were to have British goods. Such work was of great value to this country; and he was certain there was more business of a like kind going in various parts of the world. A scheme like his would enable them to take business they could not get otherwise, and help them to employ again people who otherwise had to walk the streets. They were not working for profits now; most of them were only too glad to cover charges. These were the basic factors which had to be considered; and it was useless to put before him all kinds of hypothetical difficulties regarding his scheme, which he could not possibly solve without an opportunity of trying it. If it did not succeed, then they could stop it. He believed there would be sufficient patriotism and common-sense to enable them to get together and allocate work fairly. They would all be only too glad to work together to see British industry once more placed on a sound basis.

AN APPEAL.

This was the spirit which had animated him in bringing his scheme forward; and he hoped all those who sympathized with him would help him in what was a very difficult task. ["Hear, hear."] There were a great many men who thought that criticism was the only way of assisting; it was not. It was so very easy to criticize; it was so very difficult to construct. He was glad to hear that gas engineers thought they and the members of the Society saw each other too little. He had always thought this himself. Anything he could do to help the Society during his year of office, he would be only too pleased to do. Certainly, he could lay no claim to being a "medicine man;" but Mr. Milne Watson had referred to him in several other capacities—with some he was perhaps not so pleased as with others. In some he was a purchaser of Mr. Milne Watson's products; in other ways he might be a competitor with some of the things Mr. Milne Watson's Company produced. But he knew Mr. Milne Watson would much prefer to see synthetic ammonia and sulphate of ammonia made in this country than that it should be made in Germany; and he would agree that his (the speaker's) Company, in undertaking a very large and daring experiment to make this country safe, in case of another war, in the matter of fundamental explosives, had not been actuated entirely by commercial motives, but also by a deep feeling of responsibility towards the country—a responsibility which naturally came to those who were during the last war in the position of supplying 75 p.ct. of the high explosive, ammonium nitrate, to the Allied forces. They felt that never again should this country be placed in the precarious position in which it was at that time. Of course, he hoped incidentally that they would make some money. He was quite sure British engineering and British science and enterprise were superior to anything which Germany had to offer, even in the lines on which they had been at work for many years. There were here plenty of energy, talent, resource, and inventive capacity; this country was inferior to none in the world in these great qualities. He was not gloomy about the future of British industry, and would never believe they could not re-establish that commercial and industrial position they occupied before the war; or that they were, as many people believed, on the down-grade. Take the gas industry, it had been declared dead he did not know how many times; but the declaration had always proved quite untrue. There was more gas sold now than ever before, and the industry would continue to grow in various directions and to improve its processes. He himself had been interested in cheap power for many years; and he had not finished with it yet. They were only waiting for someone to do for gas what the turbine had done for steam, for the swing to be in the other direction.

Gas the Greatest Servant of the Public.

Sir Arthur Duckham, K.C.B., said the honour had been conferred upon him of welcoming their visitors. He had been given a list; but when he read it, he found that the greater number were not really visitors, but were just friends who had come in to join them. The greater part were members of the gas industry; but on rising to propose the toast of "The Visitors," he would wish to welcome the others to a body which was part of a large body that constituted the greatest servant of the public in existence to-day. The industry's work and prosperity were entirely based on service to the public; and he had no hesitation whatever in claiming that the industry was the greatest servant of the public to-day. Just consider what gas meant in the household, in the life of the housewife—how it was lightening the burden in these strenuous times of lack of domestic service. The gas cooker, the gas fire, the gas water heater, and gas lighting, had made domestic service entirely different; and to-day a situation had been reached in which householders did not at all mind being left without domestics, because they could do the job themselves. To carry the matter further, there was the great service of smoke abatement, in which the gas industry was the chief mover. Smoke had been a disgrace to the country for very many years; and the gas people were those to cure it. It was not super-

electricity stations that were going to do this. The gas industry was the one great factor in smoke abatement in this country, and it would continue to be the main factor, by the provision of smokeless fuel, either gaseous or solid. In an amazing speech in the House of Commons, the Secretary for Mines had stated that the only hope that the Government had in the coal position was the introduction of low-temperature carbonization. When they read this, they must have felt that, even if low-temperature carbonization was right, it must be the gas industry which would have to carry it out, because that was the only industry that could properly handle the business. Going on still further, there was the question of the use of gas for industrial purposes. So far they were only touching the fringe of what could be done in this direction; but the gas industry could offer service in this direction which was becoming appreciated more and more day by day. When in America recently, he was rather amazed, while discussing gas and electricity, to be told that the gas industry there was going ahead more rapidly than the electrical industry. Gas had a service to render which the electrical industry could never fulfil. He was entirely of the opinion that the gas industry had nothing to fear from competition so long as it was fair. They were not very frightened of the electricity scheme; what they did fear was its becoming a burden on the country. The gas industry was one of the principal rate and tax payers of the country; and they were frightened of the possible effect of the scheme on their industry in this way, and in this way only. He coupled with the toast the name of Mr. Hardie, and he would like to say on behalf of the Society that Mr. Hardie was the sort of gas engineer they liked. He was of absolute integrity; he was always willing to see one; and from him they at all times got fair dealing. [Applause.]

THE GAS INDUSTRY'S SUCCESS.

Mr. THOMAS HARDIE, in response, said the visitors appreciated very much the cordial way in which they had been welcomed. The President in his address had dealt with the subject of competition by electricity, and had given to those who were favouring subsidies some good food for thought; but Sir Arthur was right—that gas was not afraid of fair competition. Gas had been in existence over a century; and it was more than fifty years since electrical competition was first put forward to frighten them. At that time it was thought that the uses of gas would be very quickly taken up by electricity; but instead of this, every year increased uses for gas had been found, and to-day there was every bit as much scope for an increase in consumption as was the case fifty years ago. This was shown by the extraordinary growth of demand, even in these years of depression. No other industry had gone ahead at such a speed during the last few years. The gas industry knew it was offering a service which the people wanted; and it did not require to be assisted by subsidies or any other means. The increase in the number of gas-consuming appliances in London alone amounted to thousands weekly; and from this cause arose the increased consumption. This growth in business would continue so long as the industry continued to give a service that the public required. He always enjoyed being the guest of the Society. There was invariably something to learn, and it was very pleasant to meet them all in these happy gatherings.

MANCHESTER DISTRICT INSTITUTION OF GAS ENGINEERS.

MEETING AT HARROGATE.

THE 201st Quarterly General Meeting of the Institution took place last Friday at the Harlow Manor Hydro, Harrogate, when there was an attendance of about 130. The proceedings opened by luncheon, at which the members and visitors were the guests of the Harrogate Gas Company.

LUNCHEON.

Mr. Francis Barber (Chairman of the Harrogate Gas Company) presided at the luncheon, and was supported by, among others, Sir Dugald Clerk, K.B.E., F.R.S. (Past-President of the Institution of Gas Engineers), Mr. J. H. Ellis (President of the British Commercial Gas Association), Mr. F. H. Robinson (Engineer and Manager of the Harrogate Gas Company, and President of the Manchester Institution), Mr. C. S. Shapley (Leeds City Gas Engineer, and Vice-President of the Manchester Institution), Mr. W. B. M'Lusky (Halifax Borough Gas Engineer), Mr. Harold E. Copp (Hull), and Mr. W. M. Mason (Manager of the "B.C.G.A.").

Mr. FRANCIS BARBER, proposing the toast of "The Guests," said his Company regarded it as a very great privilege to be able to invite the members of the Institution to their town—especially so in view of the Institution having graced the Company by the appointment of their Engineer and Manager (Mr. F. H. Robinson) as President. Directors of companies realized fully what really important individuals were the engineers dealing with their great industry; and he believed the confidence directors placed in their managers and engineers was very well merited. Institutions of that kind took a very important part in the development of ideas; and he thought the whole industry recognized that, of all the scientific minds in the country, that of Sir Dugald Clerk had probably been among the most helpful. ["Hear, hear."] He would like to offer the congratulations of the gathering to Sir Dugald Clerk on his recent honour by being awarded the Medal of the Royal Society. They would all be delighted if Sir Dugald was in a position to let them know something of the secrets of some of the recent wonderful results of research at Greenwich, of which they had heard lately.

Sir DUGALD CLERK, responding, said on occasions of that kind technical people did not care much to go into technics; but as Mr. Barber had specifically put one point to him with regard to low-temperature carbonization, it would be a breach of his duty if he did not attempt at least a short answer. This question of low-temperature carbonization had been very much in all their minds for some time; and they were told that the future safety of the country depended on success in that matter. This information was given, he feared, by gentlemen connected with politics who were glad to get some sort of cry to take to their constituencies. There had always been in politics the need of a campaigning cry to put before the public. Low-temperature carbonization was just now such a cry.

SUPER-POWER ELECTRICITY STATIONS.

Another was that of the super-power electric stations. The electrical people were quite good friends of theirs; and the only objection he had to their criticisms was when, instead of being criticisms against the science of the gas industry, they became personal abuse, as he noticed had happened lately in one case in regard to himself. Some time ago he offered to discuss matters amicably with the electrical people on the floor of their own Institution of Electrical Engineers; the understanding being that if either side was proved wrong in their contentions, they would candidly admit it. The President of the Institution of Electrical Engineers called a meeting for the purpose, and they had a very amicable discussion on the question of whether some of the electrical people's statements as to the relative efficiencies of gas and electricity were misleading to the public. At the conclusion, the electrical people present accepted his (Sir Dugald's) arguments without question. Now, however, the electrical journals were wakening-up to the attack. One had gone so far as to offer rewards to anybody who could show that electrical energy was not as efficient for cooking and heating as was gas. The journal, of course, was hopelessly out of it; and the thing only showed how little the writers knew of their business. The electrical engineer of a large city had openly objected to Mr. Baldwin's statement that electricity was enormously too expensive, and that the country would be saved only by getting rivers of electricity and selling it at practically nothing. This gentleman said: "Suppose you put up all the stations that are spoken of; you would not reduce the cost of electricity by one penny." "We know perfectly well," said Sir Dugald Clerk, "that electrical engineers have come pretty near the limit." Sir Dugald referred to a paper which he read some years ago before the North-Eastern Institution of Engineers, when figures were given by himself and by Sir Charles Parsons on the limits of the steam turbine and gas engine. Parsons had said that with steam at 400 lbs. per sq. in., superheated, &c., the maximum efficiency they could hope for was 28 p.ct.; and this was a very high percentage. On a similar comparison as to what gas could do in high-compression engines, his (Sir Dugald's) maximum figure was 46 p.ct.; and, as a matter of fact, in some recent engines that had been built in the North by Beardmore's, they had actually succeeded in getting 40 p.ct. So it was evident the figure was not so far out. Parsons' figures would mean a possible 20 or 21 p.ct. of energy of the coal transferred into current sent out of the station; and one Manchester station of fairly recent construction was doing 20·33 p.ct. "No matter how many super-power electricity stations you put up," said Sir Dugald, "you cannot get 24 p.ct.; and yet we are talking of rivers of electricity at an incredible price!"

LOW-TEMPERATURE CARBONIZATION.

Turning to the subject of low-temperature carbonization, this first appeared about 1906. "My friend the late Sir George Beilby—a very good friend to the gas industry—talked to me when this Greenwich station was started, and asked me to inspect the place; for he felt that the question of low-temperature carbonization should be investigated. Sir George investigated it very carefully; and his view was that, unless you could sell the so-called smokeless fuel produced by this process at an easier rate per ton than the original price of the coal, you could not make the concern pay. That is a fatal objection from our point of view. I have been approached by Government officials, and have investigated the process to which Mr. Barber referred just now; and the results will shortly be published in a report. I can hardly say more on that point at the present moment. On the commercial side, I do not see any real improvement. The great fault is due to this: To take equally good coal, distilled in the low-temperature way, you only get about 5000 c.ft. of gas. Most of the schemes burn that gas to heat their low-temperature retorts. That is idiotic. [Laughter.] I pointed out to the Government people that the most valuable product in gas production is the gas. If you throw away the other things, you cannot expect it to be a commercial success. You must first get the gas right. So far as the oils and tars of low-temperature carbonization are concerned, it was agreed that the products were not so valuable as from high-temperature carbonization. I pointed out that, if the Government desired to get oil for the Navy independent of outside sources, as we all agree is quite desirable, if you can imagine the whole of the 35 or 36 million tons per annum in Great Britain (I think 36 million is the figure stated, but I have recently found it is only 35 million) being put through low-temperature carbonization, and take the latest yield of oil by the most approved process, you would have about one-third of the amount required by the ships of the British Navy using steam power. If we had all the Navy using internal combustion engines, we should just be able to keep our ships going by the oil got by that low-temperature carbonization. If the Government approach this matter from that point of view, it is quite legitimate for the Fuel Station to continue experimenting. I do not expect they would attain commercial success; but they may get a knowledge which will enable us, in case of war, to feed our ships with oil—a course of which we all fully approve."

Mr. J. H. Ellis, submitting "The Institution of Gas Engineers," said it was a great pleasure to him to propose a toast to an organization to which all placed as he was—as Chairman and Managing-Director of a large gas undertaking—owed so much. He doubted whether there was any institution in the country so full of good fellowship, sound knowledge, and business ability as the Institution of Gas Engineers; and he doubted whether there was any endowed with such a high sense of public duty and responsibility. They would not expect him, following Sir Dugald Clerk, to deal with matters from the technical side; but he might be able to say something of them as they presented themselves to him as a man of business. Most Yorkshiremen knew Mr. Lane Fox, the present Minister of Mines, as a great Yorkshireman, a great landed proprietor, and a good sportsman. They were glad to hear him in those capacities; but his sentiments on the subject of low-temperature carbonization he (Mr. Ellis) ventured to say were entirely wrong. They had just heard what Sir Dugald Clerk had said as to its likelihood of being a commercial success. Yet Mr. Lane Fox, in the House of Commons recently, said: "The Government were going to spare neither money nor energy to make this process a commercial success." That was absolutely unfair, improper, and uneconomic. ["Hear, hear."] Yet it came from the mouth of a Conservative Minister. "I know something, second-hand, perhaps, about low-temperature carbonization," said Mr. Ellis. "Let me draw attention to what a man highly respected in the North for his knowledge and his position said in a letter to 'The Times'—a letter written long before Mr. Lane Fox's utterance. Lord Gainford stated therein: 'It is now over twenty years since this process was first brought to the notice of the public.' It has been investigated, experimented upon, modified, and transformed in at least fifty varieties of ways. The highest technical skill has been exercised upon it; laboratories have been devoted to the most elaborate researches into the possibilities of its development. Over £1,000,000 has been expended in the effort to give this phantom a body and a shape; and yet we have found no convincing solution of the problem which surrounds it.'" With that warning before him, said Mr. Ellis, Mr. Lane Fox stated that "the Government are going to spare neither money nor energy to make this process a commercial success." It was objectionable on business grounds. Several years ago his Company at Plymouth tried this process under its then name of "Coalite." A free hand was given for the trial; and the experimenters cleared out because it did not pay. The resulting product of fuel, which was to be smokeless, would not burn. That was the experience twenty years ago. He quite agreed that one failure was not sufficient for engineers to accept as final. They no doubt wanted to try it themselves; probably a good many present had tried it. He knew that some people, at any rate, had given the low-temperature carbonization people an opportunity to see if they could make a success of it. He knew this because some little time ago there was a paragraph in the papers that Nottingham had actually made a success of it. A friend of his came to him for information and guidance, thinking he would like to put some money in it. He told him to come back in a week. Meanwhile, he made inquiries. When the friend came back, and still seemed interested, in spite of the result of the inquiries, he told him to go and see the works at Nottingham, but he fancied he would find they were not there. He made further inquiries at Nottingham, when he heard the Government were going to take this thing over, and was informed that not a brick had been laid. In the Technical Press recently he read a paragraph reporting a claim before Mr. Justice Greer, in the King's Bench Division, against Low-Temperature Carbonization, Ltd., for compensation in default of erection of their plant; and judgment was given for the amount claimed, with costs. This was the latest information that he had as to low-temperature carbonization. [Laughter.]

THE ELECTRICITY SUBSIDY QUESTION.

Passing to the commercial aspect of the electricity subsidy question, Mr. Ellis quoted from the "Yorkshire Post" of that day a letter by Mr. C. Nelson Hefford (the City Electrical Engineer of Leeds)—a letter which was so full of sound sense and fact that he readily adopted it. It was addressed from the Whitehall Road Works, Leeds. Mr. Ellis said he only hoped the knowledge at Whitehall Road, Leeds, would extend to Whitehall, London. [Laughter.] The letter was a long one, but very sound, and in conclusion summed-up the matter as follows: "Electric current is to-day generated almost as cheaply as existing knowledge and existing economic conditions permit. In the industrial North, at any rate, the pressure of circumstances is automatically resulting in interchange and co-operation between the larger producers. Politicians should beware lest, even with the best intentions, they retard rather than advance progress." Mr. Hefford was evidently man enough to say, "I will fight my competitors unfettered," and they of the gas industry said the same. ["Hear, hear."] Frankly, he distrusted the Government—not in a political sense, but in dealing with matters of this kind, because of lack of knowledge, because of the economic position, because of the danger of unfairness in other directions.

Mr. Charles Wood, responding to the toast in the unavoidable absence of Mr. J. Ferguson Bell, said they had listened to two excellent addresses by Sir Dugald Clerk and Mr. Ellis. He was sure what the speakers had said was most important at the present time; and the information they had given would have a very good effect on all of them. Mr. Wood remarked that he himself had been a member of the Institution of Gas Engineers almost more years than he cared to remember, and he had been a member of the Manchester Institution even longer. He believed he was the fourth or fifth oldest member of the Manchester District to-day.

Mr. C. S. Shapley, proposing "The Chairman and Directors of the Harrogate Gas Company," expressed the warm thanks of all for the hospitality received, and to Mr. Robinson for the trouble he had been to in making the arrangements for the visit. Mr. Shapley said he was sure the members would find a great deal to interest them at the Harrogate Gas-Works, where Mr. Robinson had a good many rather novel ideas in operation. With regard to the letter by the Leeds Electrical Engineer, Mr. Hefford was "a jolly good electrical engineer, and a clean fighter." There were few better electricity works than those at Whitehall Road, where they were producing electricity at an average selling price of 1·58d. The gas undertaking was "up against it;" but it stiffened their backs, and would do good. But it was grossly unfair that, apparently, they were not to come in for a bit of the spoil from the Government which was to be given to the electrical people. The gas industry was supposed to have done yeoman service in the war; but it seemed now as though the electricity industry was to be assisted by the State, and the gas industry was to be left to plough its lonely furrow.

Mr. F. Barber, responding, said he was glad such tribute had been paid to Mr. Robinson. It was really more an honour to Mr. Robinson than to the Company that the members had come to Harrogate that day. It was the Company's esteem for their Engineer, who was the Institution's President, that had induced the Directors to support the high honour the Institution had done him; and they were glad to be able to show their appreciation. Mr. Robinson was appointed eleven years ago; and their selection of him had been more than justified by the results to the Company during this period, and now by the honour brought to them through his election as President of the Institution.

Mr. F. H. Robinson expressed his appreciation of the kind things that had been said about him.

THE BUSINESS MEETING.

At the business meeting, which was held in the ballroom of the Hydro, the members were briefly and formally welcomed by Mr. Barber. Mr. Robinson was in the chair.

Mr. Mason, by special permission, shortly outlined the nature of the new Wembley Gas Exhibit, its aims, and the industry's hopes of it; stating that it was even better than last year, was backed by still better publicity, and was the centre of very great hopes for what it could do in showing the world all that gas could accomplish for industry and for the home. He urged support of the exhibit on the part of any gas undertakings which had not yet given that support. Referring to extravagant and unjustified claims for electricity, Mr. Mason said some people thought the "B.C.G.A." ought to rush into print to controvert all the misleading statements which appeared; but it had been found to be by far the better way not to enter into controversy, but to concentrate on widespread publicity of the capacities of their own product, gas. The way to do business was to concentrate on that business, rather than to conduct newspaper controversy for the public amusement.

On the motion of the President, the meeting passed a resolution of condolence with the relatives of the late Mr. E. J. Brockway, of Cleethorpes.

Mr. W. B. M'Lusky (Halifax) then opened a discussion on the following subject:

SPECIFICATIONS FOR INTERNAL FITTINGS.

The Halifax specification is as follows:

SPECIFICATION AS TO THE CONSTRUCTION AND PLACING OF INTERNAL PIPES, METERS, AND FITTINGS.

Sections 36 and 37 of the Halifax Corporation Act, 1920, read:

As to Construction and Placing of Pipes, &c., Between Mains and Meters.

36. In order to enable the Corporation to ensure a satisfactory supply of gas to their consumers, the following provisions shall have effect:—

(1) The Corporation may specify the size and material of the pipes with the fittings thereof which are to be laid by the consumer *on his own premises* either in the first instance or on the occasion of any renewal between the Corporation's mains and the meter so far as such pipes and fittings are intended to be covered over.

(2) The Corporation may, if they think fit, make different specifications for different classes of premises, having regard to the probable maximum consumption of gas thereon at any one time.

(3) The specification shall be published once in each of two newspapers circulating within the limits of supply, and a copy thereof shall be kept exhibited in the office of the Corporation.

(4) Every meter to be used in a new building or a building not previously supplied with gas, or in connection with a new or substituted pipe laid by the consumer between the main and the consumer's meter, shall be placed as near as reasonably practicable to the Corporation's main, but within the outside wall of the building.

(5) When any such pipe or meter as aforesaid has been laid or placed, notice thereof shall be given to the Corporation, and the pipe shall not be covered over until the expiration of twenty-four hours from the service of such notice on the Corporation. Any officer of the Corporation duly appointed may between nine o'clock in the morning and five o'clock in the afternoon attend and inspect such pipes with their fittings and meter; and if the officer is not permitted to make the inspection, or if the pipes or fittings are not according to the Corporation's specification, or if the meter is not placed as required by this section, the Corporation may refuse to supply gas to the premises until the provisions of this section have been complied with.

(6) Any person to whom the Corporation refuses a supply of gas under the provisions of this section may appeal to a petty sessional court against such refusal, and the court may, after hearing the parties and considering any questions as to the reasonableness of the Corporation's specification, make such order as seems to them proper in the circumstances, and may

order by which of the parties the costs of and incident to the appeal shall be paid.

GAS CONSUMERS TO GIVE NOTICE TO CORPORATION BEFORE REMOVING.

37. At least twenty-four hours' notice shall be given to the Corporation by every gas consumer, either personally at the office of the Corporation or in writing, before he shall quit any premises supplied with gas by meter by the Corporation, and in default of such notice the consumer so quitting shall be liable to pay to the Corporation the money accruing due in respect of such supply up to the next usual period for ascertaining the register of the meter on such premises or the date from which any subsequent occupier of such premises shall require the Corporation to supply gas to such premises, whichever shall first occur. Notice of the effect of this enactment shall be endorsed upon every demand note for gas charges payable to the Corporation.

Length of Service Provided Free.—A service pipe will be laid from any existing main to the boundary of any private property on request free of charge, provided the length of service pipe required is not greater than 30 ft. Any additional length of pipe required to reach the boundary, and all piping laid in private property, will be charged to the consumer or owner of the property, as the case may be. No gas piping must be built over.

Lead Pipes and Connections to Inlet and Outlet of Meter.—The soft lead pipe connection between the end of the iron service pipe and the inlet to the gas meter must not be less than 12 in. or more than 36 in. in length. No outlet pipe from any meter—however small—must be less than ½-in. internal diameter. Union joints, whether on the main tap or on the inlet of the meter, must not be "bull-nosed" or "branched" into the side, but must be joined to the end of the pipe. In cases where lead connections are to be made to wrought-iron tubing, a brass union and tailpiece must be used.

Application for a Supply of Gas.—Application for a supply of gas, whether in respect of premises not supplied previously or on a change of tenancy, must be made at the Gas Showrooms, Waterhouse Street, Halifax, or at the Borough Treasurer's Office, Town Hall, Halifax, when, subject to the regulations with respect to deposits and the requirements of the Corporation as to the soundness and suitability of the pipes and fittings within the premises, the supply will be given.

Fitter.—All gasfitting work should be done by an experienced gasfitter (hereinafter described as the fitter).

Maximum Number of Burners and Appliances.—Before commencing any gasfitting work, the fitter must give notice to the Gas Engineer of the number of lights and/or gas appliances intended to be fixed.

Inspection and Testing of Gasfitting Work and Tenants' Fittings.—The service pipe will then be laid and the meter fixed; but the gas supply will not be turned on at the meter inlet until the fitter has personally examined the pipes and fittings and satisfied himself that the work is sound in every respect, and in accordance with the regulations of the Corporation. He must then intimate to the Gas Engineer (on a form provided for the purpose) that the work is ready for testing, whereupon the pipes and fittings will be examined by the Gas Department's inspector (hereinafter described as the inspector). If the work is found satisfactory, a certificate to this effect will be issued; otherwise the fitter must at once remedy the defects, and, when he has done so, notify the Gas Engineer, who will arrange for a second inspection.

Notification of Additional Lights or Appliances.—If at any time after gas has been supplied to premises it is desired to add, remove, or alter the position of any light, fitting, appliance, or meter, notice of such intention must be given by a fitter to the Gas Engineer at the Gas Showrooms, Waterhouse Street, Halifax, whereupon the premises will be inspected; and if such additions, removals, or alterations are approved, the necessary permission to commence the work will be given with or without conditions attached.

Meters on Sale or Hire.—Meters may be obtained from the Corporation on sale or hire.

Meters to be Tested.—Consumers' own meters, whether new or old, must be sent to the Gas-Works, Mulcture Hall Road, Halifax, for approval before they can be fixed, and each meter so sent must be accompanied by a note giving the full name and address of the owner. Any meter not so approved must not be used.

Secondary Meters.—Meters supplied on hire by the Corporation must be used only for the measurement of the whole supply of gas used. Other meters required by the consumer for the separate measurement of gas used in different parts of the premises are not provided on hire by the Corporation. Schemes and estimates for the sub-division of the gas supply within any premises will, however, be prepared and supplied free, upon application at the Gas Showrooms, Waterhouse Street, Halifax.

Size of Meter.—The size of the meter required at any premises will be determined by the Corporation on the basis of the maximum demand.

Position of Meter.—The meter must be fixed in a level position at a sufficient height from the floor to prevent lodgment of water around it. The position selected should be near the wall abutting on the street in which the gas main is laid, but not near a fireplace or boiler, and not in any position which is inaccessible or dangerous.

Protection of the Meter.—A space of 3 ft. must be provided between gas meters and electricity meters.

Safe Distance Between Gas and Electricity Supplies.—Where gas and electricity supplies are to be used on the same premises, the gas pipes must not be fixed at a less distance than 1 ft. from the electricity wires.

Types of Meters.—Wet meters have been found more suitable in most of the positions in which gas meters are fixed in Halifax; but in dry situations dry meters may be fixed. Such meters, however, must be placed on a shelf or other support provided by the consumer.

NOTE.—In all cases the pipe must be laid with sufficient fall towards the meter.

Meters for Gas Engines and Other Special Purposes.—Specifications and estimates will be furnished on request by the Corporation for meters required for the supply of gas to engines, furnaces, and other special appliances.

Consumers' Governors.—Consumers' governors are recommended. All such governors must be fixed on the outlet of the meter. Where mercurial governors are used, provision must be made to prevent any mercury getting into the meter.

INTERNAL PIPES AND FITTINGS.

Shops, Workshops, Factories, Warehouses, Offices, and Business Premises Generally.—The size of the outlet pipe from the meter will be determined by the maximum demand of the installation.

Residences.—The upright pipe from the floor must in no case be less than ¾ in.

2 to 4 rooms	¾ in.	Size of Outlet from Meter.
5 to 7 ,,	1 in.	
8 to 12 ,,	1¼ in.	
13 to 16 ,,	1½ in.	

Wrought-iron pip to be used.

The above dimensions must be adhered to generally, but where a larger supply of gas is necessary, a special specification will be provided by the Corporation. The size of pipe specified above must be carried to the first branch, and from that point forward in accordance with the following Tables.

Table Regulating Size of Branch Pipes and Maximum Number of Burners.

Material.	Size.	Greatest Length Allowed.	Number of Burners.
	In.	Ft.	
Block tin, wrought-iron, lead, or tinned composition.	¾	20	3
	¾	30	6
	¾	40	12
	¾	50	20
	1	70	35
	1¼	100	60
	1½	150	100
	2	200	200

NOTE.—No pipe of less than ¾ in. internal diameter is allowed.

Particulars of pipes required for larger installations will be supplied on application.

Weights of Various Sizes of Interior Piping.—Piping used for gasfitting must be of a quality approved by the Corporation, and of not less than the following weights:

Internal Diameter of Pipe.	Weight per Foot.			
	Block Tin.	Wrought Iron.	Lead.	Tinned Composition.
	Lbs. Oz.	"Gas" strength for internal fittings only.	Lbs. Oz.	Lbs. Oz.
2 in.	..		7 4	7 4
1½ in.	..		4 10½	4 10½
1¼ in.	..		3 5	3 5
1 in.	0 11		2 0	2 0
¾ in.	0 7		1 4	1 4
½ in.	0 4		0 14	0 14
⅜ in.	0 3		0 7½	0 7½

Minimum Internal Diameter of Pipes for Various Purposes.

	In.	
For a single or double bracket or pendant	¾	
For a bracket or pendants with a continuation for a gas iron or other small gas appliance	½	
For a boiling burner or griller	½	
For a fire in a small or medium-sized room	½	
For a fire in a large room	¾	
For a small cooking stove	¾	
For an ordinary cooking stove	¾	or more, according to the size of the stove.
For a small washing copper	½	
For geysers and water heaters	⅝	or more, according to the size of the appliance.

NOTE.—When a cooker and a washing copper are taken from the same branch, the branch must be not less than ¾ in.

Particulars for gas engines and other larger appliances will be furnished on application.

Fittings for Cooking and Heating Appliances.—Lead or wrought-iron supply pipes must be used for the supply of gas to cooking or heating appliances. The bore of the tap must

be equal to the bore of the pipe. The supply must be taken from a pipe of sufficient size, and direct from the meter outlet if necessary. Brass or copper tubing used in connection with gas fires or for other purposes must be solid drawn.

Anti-Fluctuators to be Attached to Gas Engine Supplies.—In all cases where gas engines are fitted, an efficient anti-fluctuator approved by the Corporation must be fixed.

Self-Acting Syphons Not Allowed.—Self-acting syphons must not be used.

Stopping Pipe-Ends.—Wooden plugs must not be used for stopping pipe-ends.

Joints.—The whole of the fittings and piping must be gas-tight and stand a test of pressure equal to 10 in. water-column for a reasonable time. Rings for making joints must be formed either of asbestos or lead, with flax or hemp and red lead packing. Indiarubber rings must not be used.

Gasfittings.—Pendants must be fixed with a trimmer, bolt, back nut, and elbow union, and with a pattress between the end of the pendant and the ceiling. Connecting bits must not

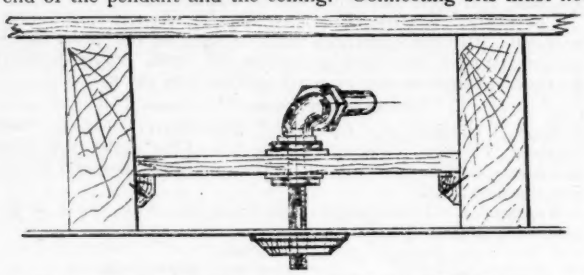


Fig. 1.—Fixing with Trimmer, Bolt, Backnut, and Elbow Union.

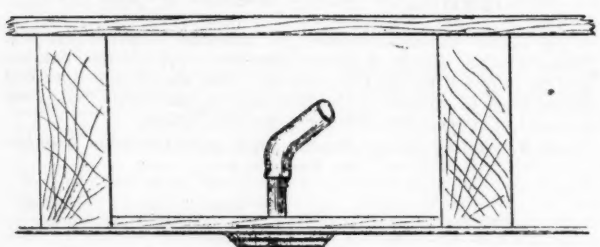


Fig. 2.—Showing Connecting Bit.

be used. The pendant top, pattress, and trimmer must be efficiently screwed together.

NOTE.—Water-sealed gasoliers must not be used. Ball-and-socket joints of the half-ball variety must not be used. All fittings must be produced on demand for inspection and approval by the Corporation.

Side Brackets.—Side brackets must be fitted with brass connecting bits, and fixed on wooden blocks let into the wall.

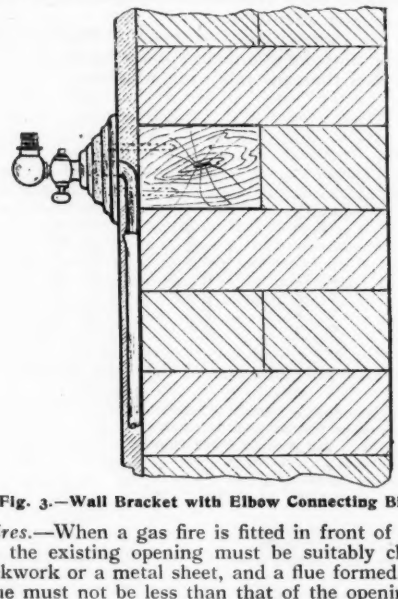


Fig. 3.—Wall Bracket with Elbow Connecting Bit.

Gas Fires.—When a gas fire is fitted in front of an existing fireplace, the existing opening must be suitably closed either with brickwork or a metal sheet, and a flue formed. The area of the flue must not be less than that of the opening provided in the gas-fire casting.

Gas Cookers.—The products of combustion must, if it is at all possible, be carried into an existing chimney. Where a chimney is not available, it is not advisable to attempt to lead the products of combustion from the flue through the wall. The officers of the Corporation will advise special measures to suit every case of this kind.

CAUTION.—Gas cookers must not be placed on wooden floors or platforms, but must rest on stone, concrete, or slate.

Precautions to be Taken in Case of Escapes, &c.—When the odour of gas is first detected, the gas supply must be turned off at once at the main tap *near the meter*, and the windows opened at the top and bottom. All fires and lights in the premises affected must be extinguished, and no attempt must be made to search for the escape with a naked light. Night calls are received at the Gas-Works, Mulcture Hall Road, Halifax (Telephone No. 1485), and prompt attention will be given at all times. The Corporation will not be responsible for any loss or damage caused by leakage in internal pipes or fittings.

Unauthorized Persons Not to Interfere With Pipes, Taps, &c.—Apart from cases of fire, escape of gas, or other emergency, no meter, service pipe, or *service-pipe tap outside any premises*, must be interfered with by any person not in the employment of the Corporation Gas Department.

The above notes were taken as read, but in introducing them Mr. M'Lusky said he had found that the Manchester district was very well in advance of the country generally in this matter. As far back as 1891 the Corporations of Bradford and Burnley had powers to ensure efficiency of gas pipes and fittings, and to prevent accidents. Statements of particulars as to the materials to be employed, the mode of their use or construction, and the soundness of the craftsmen's work when finished, had been provided by gas undertakings in various parts of the country for many years past. One of the best specifications was that of the Manchester Corporation. The work of the Manchester Corporation Distribution Department appeared to be organized right down to the last holdfast. The following sections in the specifications in the hands of the members in print were taken from the Manchester specification: Lead pipes and connections. Position of the meter—with this difference, that in the Halifax section it was provided that the meter should be near, and not against, the wall, as they had had meter cases destroyed by stray currents of electricity earthing between the damp wall and the case of the meter. Weight of pipes. This section was based on the practice in Manchester. Hitherto the weights of lead pipes used in Halifax had been heavier than the lead pipes in Manchester; but, on the other hand, the Halifax weights for tin pipes were less than those of Manchester. Gasfittings and side brackets. Here the particulars were substantially as those of the Manchester Corporation. In all other particulars the specification was the result of his own experience.

For half-a-century or more, he said, the work of internal fitting for gas supply had been conducted in accordance with a well-established rule and practice in the principal towns in this country, at any rate. The Burnley Borough Improvement Act, 1871, gave the Burnley Corporation the following powers: "All pipes and other fittings required for distributing gas or water respectively within any building shall be approved of by, and affixed to the satisfaction of, the Corporation or their gas or water manager respectively, before the owner or occupier of such building shall be entitled to a supply of gas or water."

The Oldham Improvement Act, 1880, section 52, provided, among other things, that "the Corporation may, if requested by any person supplied or to be supplied by them with water or with gas, furnish to him at his costs and charges, and from time to time fix, repair, alter, or add to, any pipes, valves, meters, &c., . . . or . . . any gasfittings necessary for or connected with such supply, and may provide all materials and do all works necessary or proper in that behalf, or instead of charging the costs thereof to such person may charge such person with such annual or other rent or sum as may be reasonable and agreed on between the Corporation and such person."

The Bradford Water and Improvement Act, 1881, section 45, for ensuring efficient gas and water pipes for houses, stated: "The Corporation may from time to time make and publish such bye-laws as they deem necessary for securing the laying, fixing, and fitting of pipes for the distribution and supply of gas and water by the Corporation at houses and other buildings and places in the borough [Bradford was not at that time a city] in a proper and efficient manner and by competent persons only, and for granting license and authority to such persons for such purpose." The remainder of the section provided penalties to be imposed on persons who acted contrary to the by-laws, or persons not so licensed who fixed, repaired, or altered any pipe or fitting. The Bradford Water-Works and Improvement Act, 1885, section 31, empowered the Corporation to lay and fix service pipes, taps, fittings, junctions, connections, chandeliers, brackets, and the other appliances connected with the supply of gas by the Corporation, at houses and other buildings and places in the borough, and regulated the size and quality thereof.

The Burnley Corporation (Tramways), &c., Act, 1898, provided regulations for preventing the misuse of, and accidents from, gas. Section 35 of that Act read as follows:

"For preventing misuse of gas and for preventing accidents in connection with the supply of gas, the following provisions shall have effect:

"(1) The Corporation may make such regulations as they think necessary for the objects aforesaid to be observed by persons supplied with gas.

"(2) By any such regulations the Corporation may direct the use and prescribe the size, nature, strength, and materials, and the mode of arrangement, alteration, and repair of pipes, valves, meters, and other apparatus to be used by such persons re-

spectively for carrying, delivering, and receiving gas, and may interdict any arrangement and the use of any pipe, valve, meter, burner, or other apparatus in their judgment likely to occasion misuse of gas or likely to cause accident.

"(3) The Corporation shall not be bound under any agreement or otherwise to supply, or continue to supply, gas to any person unless such regulations as are for the time being in force are duly observed by him."

The Bradford Corporation Act, 1903, section 35, the Perth Corporation Gas Order Confirmation Act, 1906, section 10, the Oldham Corporation Act, 1909, section 70, and the Halifax Corporation Act, 1920, section 36, provided powers to enable the Corporation to ensure a satisfactory supply of gas to the consumers; and with one or two unimportant exceptions, these Orders were alike in expression. The more recent Orders limited the publishing of the specification to one insertion in some newspaper, instead of two insertions as in the earlier Orders. Section 5 of the Bradford Order began: "When any such pipes, meter, or fittings as aforesaid." The other Orders referred to omitted the word "fittings" in this part of the section. But the inspection of fittings was provided for in all cases in a later part of the section. Powers or Acts were not lacking; and if any undertaking to-day was short of powers, the remedy was at hand in the Gas Regulation Act.

Mr. M'Lusky said he supposed the discussion that afternoon would probably centre on the need for the better exercise of the powers undertakings already possessed. Time was when excuses could be made for lack of progress in fittings work, or in the inspection of fittings; but to-day he thought no fault could be found with the master fitter or his men. They were, to a large extent, the agents of the undertakings; and his experience was that they were good agents, and they were always ready to do what was required of them. It was desirable that specifications should conform to an accepted standard. If a specification was good enough for one district, it was good enough for the country, or, at any rate, for an area such as that covered by the Manchester District Institution of Gas Engineers. It was true that practice varied to some extent in different parts of the country. Lead service pipes were used in preference to other materials in parts of the North of England, and in the South-Eastern districts of Scotland. Block tin tube was preferred to tinned composition in many cases, and in Yorkshire ordinary lead pipe was used in preference to wrought iron to a large extent; but a general specification such as that submitted by him that day covered this range. It was a general specification. The working out of the minor details—which were purposely omitted—was better left to the initiative and experience of those who had to do the work, and who knew their own peculiar requirements.

Specifications, after all, did no productive work; but as part of the organization the specification was indispensable. The organization, of course, included the architect first and foremost, the builder, the master fitter, and the gas authority and its administrative and executive staffs. In an organization of that kind the specification became a mere "finger-post" or direction sign—everyone observed it, everyone worked to it, with the result that the architect's schedule of quantities provided a uniform basis of tender, and the architect proceeded with the regularity of a fixed habit. The importance of gasfitting work had probably of late years escaped the notice of the general fitter, the master plumber, the sanitary engineer, and the occasional electrical fitter, who had relegated gasfitting to the position of a mere branch of his general business, and in some cases, he feared, a much neglected branch.

During the past ten years, Mr. M'Lusky concluded, apprentices engaged in such general work had, in many cases, had little or no real gasfitting work in the whole course of their training. This was bad for the craftsman himself, and, if the remedy were not applied, would react on the industry. In Halifax the training of apprentices was one of the responsibilities of the Distribution Superintendent, and the training consisted of the art and craft of meter-making, sheet-metal work, and gasfitting.

Discussion.

Mr. RALPH HALKETT (Sheffield) said his Company at Sheffield had no power to specify pipes, but they did keep in touch with the builders. This had been in operation for some time, and was found to be very beneficial to the Company and to builders alike, because it had helped to get fittings into houses where people would not let them take-up boards and run pipes to instal gas fires. They had only recently adopted prepayment meters in Sheffield, and they specified that certain pipes should be run through. This was absolutely necessary, because they found the difficulty was with old houses. If the plumber thought he would put in a pipe, he sometimes did not mind what sort of pipe it was. The difficulty in these old houses was, therefore, to get sufficient pressure of gas through the pipes previously put in by plumbers. It was certainly a very happy position to be in to be able to specify what pipes should be installed; but he was afraid not many undertakings were in it. Now that they were going to have such keen competition from the electricity people as they had expected, it was up to them all to see that, if they had not powers, they should get into touch with builders and architects, and educate them to the needs of gas service. Another useful channel was that of good relationships with the local plumbers, who also should be educated to the requirements of gas appliances. In regard to service, he noticed Mr. M'Lusky defined 30 ft. free to the boundary. In Sheffield they gave 20 ft. to the mains, no matter what was the position. Mr. M'Lusky referred to wet meters. In Sheffield they were happy in having all wet meters. From his experience, he would never think of going over to dry meters. The wet meter seemed to him certainly more reliable, and it also provided a saving in the cost of repairs.

Mr. HAROLD E. COPP (Hull) said he must confess he was a little alarmed at the statement that so very few fittings in houses would stand any test. He thought the reason would be found to be the bad fittings, rather than the pipes themselves. A very large number of fittings coming under his notice showed minute leaks at the taps; and he thought this was one of the principal causes of the trouble. It behoved them to get their fittings as tight as possible. The way he had overcome the matter at Hull, having no statutory powers, was by selling to the fitters from the undertaking's own stock. For what fittings from that stock that were put in by the outside fitter, he was charged only 5 p.ct. on the Company's actual cost price. The fitter therefore preferred to come to the undertaking, and they saw that he got good fittings.

Mr. H. DAVIES (Chesterfield) believed the Manchester Institution were instrumental in preparing a specification of this kind some years ago; and he thought it was still fairly up-to-date. If not, he would suggest it should be made so. He believed that before very long the industry would be required to carry out this phase of work with the utmost possible precision. With regard to the 24 hours' notice which consumers had to give, Mr. M'Lusky said it must be given either in writing or by a call at the office. Did he find any difficulty in people calling at the office and not giving notice in writing? In regard to the fitters, were they Corporation fitters or local plumbers? He found it extraordinarily difficult to insist in every case on having a meter fixed as Mr. M'Lusky suggested it should be done, though the local by-laws said it should be done in that way. He fancied, if they insisted too much, they would get no gas at all into some places.

Mr. W. W. ATLEY (Stockton), President of the North of England Association, said he had had a complaint only that day from a consumer, who asked what was their standard pressure. The consumer said that before putting on a cooker he got 6¾ in. water gauge, and on the cooker being put on the pressure dropped to 6 in. Upstairs, for a water boiler, the pressure was only 4 in. The reply sent to him was that the standard pressure was 2 in. water gauge; and if he was getting 6 in., he was getting three times more than that. As to the inequality upstairs, he should get a local plumber to make it right. Mr. Atley said his undertaking had a Bill going through Parliament, by which they would have powers to provide, if they so desired, a specification for internal pipes; but there was so much red-tape attached to it from a municipal undertaking point of view, that he, personally, was not anxious to be the instigator of preparing the specification. At Stockton, owing to local conditions and bargaining, they were very generous in free service pipe, giving up to 50 ft. from the main. It used to be 30 ft. He had a complaint recently of a plumber who had fixed a gas fire for the undertaking, under a scheme which they had with the plumbers; and the complaint was that they could get no gas to it. On investigation, it was found that the solder had run right through and blocked-up the pipe. Mr. Atley thought the undertakings, however, should foster as much business as they could with local plumbers; and in Stockton they had a standard price for fixing fires up to 30 ft. from the main. Anything beyond this was paid for by the consumer at so much per foot. They allowed the fitters half the year's hire on the fire, as a commission for their help in getting the business.

Mr. W. M. CARR (Stretford), referring to loss of pressure when testing, said it seemed to him that they ought to be able to obtain powers such as those held by the water undertakings, to enable them to stamp appliances and fittings. If they made sufficient representations to the Board of Trade, such powers would eventually be given them. That they were very necessary was borne out by what Mr. M'Lusky said. He knew this was not a new suggestion, but he thought they ought to try to bring it about.

The PRESIDENT said, regarding the powers of undertakings to make these specifications and enforce them, the Bedford Gas Company had recently got authority to specify and enforce. They in Harrogate, in an Order received from the Board of Trade, which was now before the House of Commons, had similar clauses; and it seemed to him that if other undertakings applied to the Board of Trade, they should have no difficulty in getting them. At Harrogate they had been working on the Manchester specification for some time. He agreed with Mr. Carr that power should be given to insist on a higher standard of work, such as water undertakings possessed. It was a matter of both satisfaction and safety to consumer and supplier alike.

Mr. A. E. MOTTRAM (Ossett) asked that the discussion, which was on a subject of great interest, should be adjourned to the next meeting, to be renewed on that occasion; and this was agreed to.

Mr. HALKETT said some observations made prompted him to add that the installations put in by the builders in Sheffield were subjected to a test of 4 lbs., and had to stand for half-an-hour. He found there was no difficulty in getting pipes to stand the 4 lbs. pressure; but it would be very difficult to get some fittings to stand it.

Mr. M'LUSKY said he would reserve a detailed reply, in view of the renewal of the discussion on a future occasion; but there were one or two points to which he might refer. He agreed with Mr. Halkett and Mr. Copp. There was no difficulty with regard to pipes, joints, or the work of the craftsman on the job. The whole of the difficulty was with the fittings. At Halifax they were wholesale distributors, and they found they had to reject a good many fittings, even from a house of good repute. They had reason to adhere to the letter of the specification. They did not take the responsibility of laying pipes in private grounds. The pipe was the property of the owner of the grounds, and he was responsible in the event of leakage. From the main to the meter they charged only once. Their fitters were registered. They had a co-partnership scheme with all fitters in the town who were qualified to be registered. The fitters got the whole of the difference between the invoice price and the sale price; the gas undertaking got nothing in that respect. If the gas undertaking made the sale, it had all the profit.

The scheme was an inducement to the fitters to come to the undertaking to buy. In Halifax they found the architects and builders had been habituated to work with the undertaking. The undertaking's men were always in contact with them, and they got to know when an installation was required, and it was simply booked. As to the suggestion of stamping, the clauses he had quoted amounted to the equivalent of powers to stamp.

On the motion of Mr. G. S. FRITH (Runcorn), the thanks of the meeting were accorded to the Harrogate Gas Company for their hospitality, and to Mr. Robinson for all he had done for the members throughout the day.

Mr. ROBINSON briefly acknowledged the vote.

The party were then conveyed to the Harrogate Gas-Works, where tea was subsequently served.

NEW HOLDER AT ROMFORD.

Inauguration Ceremony.

With the recent inauguration ceremony in connection with a new boiler at the Romford Gas-Works, the completion was reached of twelve months' work; the foundations of the tank having been laid in April, 1924. The opening of the valve to admit the first gas to the holder was performed by Miss Ellen Johnson, the daughter of Mr. Henry Johnson, who is Chairman of the Company. The new holder has a capacity of 1½ million c.ft., and was constructed by Messrs. Westwood & Wrights, Ltd., of Brierley Hill.

Mr. Johnson said the reason that the Company decided to have the holder was because the output was a million c.ft., and the storage was only half a million, which was the cause of much work and anxiety to the officers. The new holder would make the work easier and give better pressure to the extremities of the district. The Hon. Charles Rhys, M.P. for the Romford Division, referred to the growth of the neighbourhood and the necessity for the enlargement of the undertaking. When Miss Johnson had opened the valve, he, on behalf of the Company, asked her to accept a gold wrist watch and bracelet as a memento of the occasion. On this was inscribed: "Presented by the Romford Gas Company, Ltd., to Miss Ellen M. Johnson, daughter of the Chairman, upon the opening of the new gasholder, May, 1925."

The party then adjourned to the Board Room, where the Chairman proposed success to the new holder, coupled with the names of Messrs. Westwood & Wrights and the Company's General Manager, Mr. Frank Wright. With the toast was coupled also the name of Mr. Robert Wyld (the Foreman Erector).

Responding, Mr. Wright (of Messrs. Westwood & Wrights) said the new holder was a three-lift spiral guided one; the tank having a capacity of 15,589 tons of water. It was 147 ft. 6 in. in diameter by 33 ft. 3 in. deep, and weighed 337 tons. It contained 750 plates, 1 in. to ¼ in. thick, and was held together by 68,000 rivets. The holder bottom lift had a diameter of 145 ft., the middle lift 142 ft. 6 in., and the inner lift 140 ft. There were 328,400 rivets used in its construction. Proceeding, he asked Miss Johnson, on behalf of the firm, to accept a cut-glass rose bowl, made at the glass works almost next door to his firm's premises. Referring to the gasholder, he added that, without the full co-operation of the staff and men at the works and on the site, it would have been impossible to carry out such a contract successfully. That such a holder was required to deal with the gas consumption was sufficient evidence of the progress of the Romford Gas Company; and if this progress continued at the same rate, it would not be long before the firm would have the pleasure of building another holder for the Company.

Gas at the Printers' Exhibition.

The above exhibition at the Royal Agricultural Hall, Islington, is one of the best of its kind that has been held in connection with the printing trade, and is of exceptional interest to the gas industry, if only for the fact that no solid fuel whatever is used in connection with any of the furnaces that are being displayed. Gas has been applied in every case, and a great deal of interest has been created in this connection. The surface combustion plant supplied by British Furnaces, Ltd., of Chesterfield, is shown as standard equipment on the stands of the largest firms represented at the exhibition. An illustrated description of the applications of gas to the printing trade, as demonstrated at the exhibition, will appear in the "JOURNAL" next week.

Main Surveying by Air.—The "American Gas Association Monthly" reproduces a photograph showing the method employed by the Louisville Gas and Electric Company for locating pipeline rights-of-way by means of aeroplane pictures. In this type of work precise surveying is not essential; and the air photographs indicate the exact location, in approximately correct scale, of everything on the surface of the ground—such as streams, houses, and fences. Photographic maps may also be used to obtain contours, by simply running a base line along the object to be surveyed.

CORRESPONDENCE.

[We are not responsible for opinions expressed by Correspondents.]

Gas Engineers as Directors.

SIR,—Dr. Carpenter, in his speech last year at the luncheon given by the President of the Institution of Gas Engineers, raised a very interesting and important point. He asked where had we men in the gas industry to-day to follow in the steps of the great men of the last generation—Sir George Livesey, Sir Corbet Woodall, Mr. Charles Hunt, Mr. Harry Jones, &c. To-day, more than ever, the gas industry requires men of this calibre, not only to assist its progress, but also to protect its interests in face of Government subvention to a younger, and in many ways a rival, industry.

The honoured names mentioned by him were all borne by those who were engineers in the first place. I would submit that we have in our industry to-day men of equal technical ability; it would be sad to think we had not those who have the necessary personality and character latent in them. I believe it is only opportunity that is lacking.

Our technical men are kept far too much to executive work. Managerial and directorial responsibilities develop personality, increase confidence, and make character. Many gas companies have on their staffs engineers who have proved their true worth as executive officers, and who have made their companies' interests their life work. If in such cases these men were appointed to the Board of Directors while still retaining their executive duties, I am sure the companies would benefit, and the gas industry would be strengthened, by having at their call men of high technical skill, and fully used to directorial responsibilities.

We need our fullest strength, organized on the basis of the industry as a whole, and co-ordinated with one ideal before us—the good of the nation and the good of the gas industry.

ARTHUR DUCKHAM.

52, Grosvenor Gardens, London, S.W. 1,
May 25, 1925.

Mr. Milne Watson and Government Electricity Development Schemes.

SIR,—Your readers will peruse with keen interest the able address that our President, Mr. D. Milne Watson, delivered at the annual meeting of the Society on the 20th inst.

The subject with which he dealt is of such vital importance to all branches of the gas industry that your readers may be interested to learn that we are enlarging somewhat on the suggestion of our new President (the Rt. Hon. Sir Alfred Mond) by circulating a reprint of the address to every Member of Parliament, thereby giving them an opportunity of realizing *facts* which otherwise perhaps might not come to their notice.

B. B. WALLER,
Chairman of the Council of the Society of British Gas Industries.

56, Victoria Street, Westminster, London, S.W. 1,
May 25, 1925.

Low C.V. Gas and the Unaccounted-for Gas.

SIR,—As Mr. Keillor has so well pointed out, the distribution of low C.V. has nothing whatever to do with unaccounted-for gas. Further, he urges that the Technical Press would be helpful to the industry if they were much more aggressive in their criticism of such ridiculous statements. I wish heartily to endorse Mr. Keillor's remarks.

I should also like to direct attention to Mr. West's most recent utterance on the subject: "I still think, however, that before a low-grade gas can be distributed successfully all over the country, much preliminary work in the way of improving, purifying, and cleaning-out distribution systems will require to be undertaken in many cases, unless someone comes along with a new type of meter."

Such a statement means nothing short of this—that in Mr. West's opinion the gas industry should regulate the quality of gas it supplies to suit the measure used to register consumption. Apply such reasoning to any other trade. Do the scales or measures by which goods are sold limit the quality or cheapness of such goods?

GEO. HELPS.

Nuneaton Gas Company.
May 21, 1925.

A Useful Sport.—Ratting by Motor Car.

SIR,—The danger lurking in the fumes from motor cars when the exhaust is allowed to escape within the confines of the garage was pointed out in the "JOURNAL" for May 6, p. 362.

This danger can best be exemplified to the popular mind by turning to the credit account the asphyxiating qualities possessed by these exhaust fumes. The fumes are particularly heavy, and if, when in a rat infested area, a hose be attached to the exhaust and led to a rat hole, the gases will soon permeate the rat warren, and displace the lighter air, thereby asphyxiating the young rats and forcing the old rats to the surface, where a good dog would have the time of his life. Considering the vast numbers of motor cars held by young sportsmen, the damage done by the hordes of rats left us as an aftermath of war should soon be reduced to negligible proportions, with advantage to human health, and added peace of mind.

AD REM.

At a meeting of the Rhyl Urban Council last week it was stated that the Gas Department showed a profit for the past year of £2182, after paying loan charges of £1514.

PARLIAMENTARY INTELLIGENCE.

HOUSE OF LORDS.

Progress of Bills.

Statutory Gas Companies (Electricity Supply Powers) Bill: Brought from the Commons, and read the first time.

Forfar Gas Order Confirmation Bill: Returned from the Commons, agreed to.

Oldham Corporation Bill: Reported, with amendments.

Uckfield Gas and Electricity Bill: Read the third time, passed, and sent to the Commons.

Blackpool Improvement Bill: Reported from the Select Committee, with amendments.

Gas Regulation Act.

In the House of Lords, on the 19th inst., the Earl of Clarendon (on behalf of Viscount Peel) moved that the draft Special Orders relating to the Altrincham Gas Company and the Stockton-on-Tees Corporation proposed to be made by the Board of Trade be approved; and this was agreed to.

HOUSE OF COMMONS.

Progress of Bills.

Forfar Gas Order Confirmation Bill: Read the third time, and passed, without amendment.

Kilmarnock Gas and Water Provisional Order Bill: Committed, read, and discharged; considered, read the third time, and passed.

Horley District Gas Company (Electricity Supply) Bill: Reported (preamble not proved).

Uckfield Gas and Electricity Bill: Read the first time, and referred to the Examiners.

South Metropolitan Gas Bill: As amended, considered; to be read the third time.

The draft of a Special Order proposed to be made by the Board of Trade under section 10, on the application of the British Gas Light Company, with respect to the Trowbridge undertaking, was presented to both Houses.

Gas Companies and Electricity Supply.

Mr. LOOKER, on the 18th inst., asked the Minister of Transport whether he would give an undertaking that, under the scheme of general electrification contemplated by the Government, the rights and undertakings of existing gas companies would be duly protected.

Colonel ASHLEY, in reply, said the Government's proposals in this matter had not yet been formulated. At present, therefore, it was impossible to say whether any questions would arise under the last part of the question. The Government had got to consider the proposals which were now being sent up to them.

HORLEY DISTRICT GAS COMPANY (ELECTRICITY SUPPLY) BILL.

House of Commons Committee, Monday, May 18.

(*Before Major* MALONE (Chairman), *Mr.* SAVERY, *Mr.* C. W. CROOK, *and Sir* HENRY JACKSON.)

The purpose of the Bill was to empower the Horley District Gas Company to supply electricity, jointly with gas. There was opposition by the Horley and District Electricity Supply Company, Ltd., to whom the Electricity Commissioners have already granted a Special Order for the purpose of supplying electricity in Horley, which Order is now awaiting confirmation by the Minister of Transport.

The Gas Company were represented by Sir HARRY COURTHOPE-MUNROE, K.C., and Mr. JACQUES ABADY; and the Electricity Company by Mr. W. CRAIG HENDERSON, K.C., and Mr. F. J. WROTTESLEY.

The Bill had already been passed by the House of Lords, where an obligation was put upon the Gas Company to supply electricity within the compulsory area within twelve months after Royal Assent had been given to the Bill. (The proceedings before a Committee of that House, presided over by the Earl of Clarendon, were reported in the "JOURNAL" for March 25, p. 750; April 1, p. 63; and April 8, p. 128.)

The story which was presented by Sir HARRY COURTHOPE-MUNROE, who opened the Bill, was the same as that put before the House of Lords Committee on the previous occasion, and the opposition by the Electricity Company was the same. Briefly, the position, as stated, was that the Gas Company decided, in 1922, when Mr. H. J. Randall (Engineer and Manager of the Yorktown and Blackwater Gas and Electricity Company) became a Director of the Horley Gas Company, to apply for powers to supply electricity. A statutory gas company, however, can only obtain such powers by the promotion of a Bill in Parliament; and, in view of the heavy expense involved thereby, and the fact that Mr. R. G. Clarry, (M.P. for Newport) was to present a Bill to Parliament which would enable statutory gas companies to apply to the Electricity Commissioners for an Order giving electricity powers, thus placing them in the same position as any other company, the Horley Gas Company decided to await the passing of Mr. Clarry's Bill. The matter dragged on until 1924, when it was considered that, owing to the state of Parliamentary business, the passage of Mr. Clarry's Bill was uncertain; and the Gas Company promoted the present Bill. Meanwhile, the residents at Horley had formed a Company for the purpose of supplying electricity, and, though the Gas Company had informed them of the steps they had taken, the Electricity Company applied to the Electricity Commissioners, and obtained an Order empowering them to supply electricity. This Order is awaiting confirmation by the Minister of Transport; and, as the Gas Company have lodged an objection, an inquiry has to be held before confirmation is given. The Gas Company claim that, being an established Company, they are in a better position to supply electricity cheaply, inasmuch as they could raise capital more cheaply, and could employ their present Directors, staff, and workmen in the two undertakings, so spreading overhead charges over the two undertakings. They also claim that they had the matter of electricity supply under consideration before the gentlemen who had formed the Electricity Company; but the latter claim that the Gas Company's activity is the result of the formation of the Electricity Company, and that the Gas Company wish to obtain electricity powers in order to avoid active competition with gas.

COUNSEL pointed out to the Committee that Parliament had, on 23 occasions, granted power to gas companies to supply electricity, and emphasized that a cardinal feature of the Horley Gas Company's scheme was that the waste heat arising from the process of gas manufacture was to be used for generating electricity. It was estimated that, in the first year, three-quarters of the electricity produced would be generated by steam raised from this waste heat, and that in the second year two-thirds would be so generated, so that only one-quarter of the electricity in the first year, and one-third in the second year, would have to be generated by fuel-consuming engines.

Mr. *H. J. Randall* (Director of the Horley District Gas Company, and Engineer and Manager of the Yorktown and Blackwater Gas and Electricity Company), said that at the first meeting of the Horley Company which he had attended as a Director he had brought forward the question of electricity supply, because he considered that the district would be bound to have a supply sooner or later, and the time was opportune for the Gas Company to provide it. The Directors had considered the matter, and he had dealt with the engineering aspects. The obvious thing to do was to obtain a bulk supply, if possible; but, owing to the difficulty of obtaining a suitable supply, the Company decided to generate electricity themselves. He confirmed Counsel's statement as to the steps which had been taken. He considered the Horley Gas Company were in a better position to supply electricity than was a new company dependent on electricity revenue alone. A suggestion had been made by the petitioners that dividends payable on certain of the stock would be subject to a sliding-scale dependent on the price of gas, and not on the price of electricity, and as a result of the proposals of the Bill it would be in the interests of the Gas Company to reduce the price of gas in order to earn the right to pay a higher dividend on the capital to be used for the electricity undertaking, and to earn the money required for paying that higher dividend by keeping-up the price charged for electricity. In reply to this, Mr. Randall pointed out that the gas and electricity capital would be kept separate, and that the accounts had to be submitted to auditors appointed by the Electricity Commissioners, and if it were found that the Company were doing such a thing, they would be quickly brought to book. But, from the practical point of view, after £15,000 to £20,000 had been spent on electricity mains, surely it would be suicidal to increase the price of electricity to the maximum, and prejudice the possibility of increasing the demand for electricity so that the gas would benefit. Even if that were done, the increased remuneration resulting from increasing the price of electricity would be so small as to be practically negligible in affecting the dividend. Witness then referred to the supply of electricity and gas by the Yorktown and Blackwater Company, and gave figures to show that the electricity and gas undertakings had both developed rapidly side by side. The development of the electricity undertaking there had stimulated the sale of gas as well.

Mr. CRAIG HENDERSON, in the course of his cross-examination, put a number of questions, in which he suggested that the surplus heat generated in the gas manufacturing process was used for generating steam for auxiliary plant in the gas-works themselves in up-to-date works. Therefore, if it were used for generating electricity, the gas-works must go without some of these modern appliances.

Witness replied that some of the big works were using waste heat in this way, but the question was a new one; and, inasmuch as waste solid fuel—which fuel could not be sold—was used for generating steam in the Horley Gas-Works, the waste heat which it was now proposed to use for generating electricity would be wasted unless it was so used.

The Committee adjourned.

Tuesday, May 19.

Mr. *William Cash* (of Messrs. Cash, Stone, & Co., Chartered Accountants, Past-President of the Institute of Chartered Accountants, and Chairman of a number of gas and other public utility companies) was then called to give his expert views as to the suggestion that the Gas Company, if given electricity supply powers, might keep up the price of electricity, so as to reduce the price of gas and enable higher dividends to be paid under the sliding-scale. He did not argue with the statement as such, because where there was a sliding-scale, of course, a company's interests lay in reducing the price of gas and so increasing the dividend; but it only applied so far as it was not checked by commercial considerations. The Horley Gas Company, for instance, were to-day charging a price for gas which would enable them to pay a higher dividend than was actually being paid. He himself was Chairman of the Bournemouth Gas and Water Company, where a sliding-scale operated with regard to gas supply; and it might be said that that Company charged a higher price than was necessary for water, in order that a higher dividend might be paid by reducing the price of gas. But this was not so. The water and the gas charges were regulated by legislation, and the Company were not paying anything like the dividend they might pay. He referred to other companies where two commodities were being supplied, one of which was the Tottenham District Light, Heat, and Power Company, which supplied gas over a large area, and in one district—Wood Green—both gas and electricity. The progress made in regard to both gas and electricity sales in Wood Green had been rapid; and, in spite of the supply of the two commodities being in the same hands, electricity development had not been stifled in any way. Again, at Bognor, where gas and electricity were in the same

hands, there had been a simultaneous decrease in the price of each, and a progressive increase in sales. It was the commercial aspect which really applied—a company which had embarked capital in their undertaking would, in their own interests, make the thing a success if possible. To do this, they would keep prices down, and in the case of both commodities a decrease in price was almost invariably followed by an increase in sales. Dealing with the capital of the Horley Company, witness said that the total amount which could be paid in extra dividends as the result of a reduction in the price of gas of 1d. per 1000 c.ft. was £82, and it was not likely that the Company, for the sake of another £82 a year, would embark on substantial capital expenditure in connection with electricity. There were other companies supplying both commodities, and he had never heard any suggestion of unfairness.

Asked by Mr. Craig Henderson, in cross-examination, to give information as to the results obtained where there were two competing concerns supplying gas and electricity, Mr. Cash referred to the Croydon Gas Company, which was competing with the Corporation electricity undertaking. Both concerns were growing rapidly. Asked whether the enormous strides made in the development of the gas industry were not due to the competition offered by the introduction of electricity, he admitted that this was a factor. It was then suggested by Counsel that, though the Horley Gas Company had been supplying gas in Horley since 1886, yet local residents had now subscribed £10,400 in order to set up a competitor to supply electricity; and he asked whether this did not suggest that the community would be better supplied if the competitor were allowed to go on. Mr. Cash replied that it did not necessarily follow, and that the combination of the two undertakings would result in advantages to the community.

Sir Harry Courthope-Munroe said he was willing that, if the Committee could devise any safeguard against the tendency suggested by the petitioners, it should be inserted in the Bill.

Mr. A. Hugh Seabrook (of Sir Charles Bright & Partners, Electrical Engineers, and late General Manager and Engineer to the West Ham and St. Marylebone Corporation electricity undertakings) said he had been advising the Horley Gas Company with regard to the scheme, which was on the same lines as other schemes which had been sanctioned by Parliament, except that it was proposed to generate a portion of the electrical energy supplied by means of surplus heat from the gas manufacturing process; there being sufficient surplus heat to produce about 900 lbs. of steam per hour. In the first year of electricity supply, three-quarters of the electricity required would be generated by this means, and in the second year two-thirds of it; the saving in the first year by this means being £219, which was substantial in a small undertaking. Generating costs in the first year he estimated at £373, £300 of which represented wages and repairs and maintenance of plant, and £73 cost of fuel (gas or oil) required to drive the engines which would produce that portion of the electricity not generated by utilization of waste heat. Since the Bill was promoted, the Gas Company had promised to give a bulk supply to the Sussex Electricity Supply Company, Ltd., for the purpose of supplying Crawley, which adjoined the proposed electricity supply area of the Gas Company, and was within the existing gas limits. It would be a great advantage to have a big customer of this sort. Witness handed-in tables showing the estimated results of the working of the undertaking in the first two years, which were exactly the same as those given when the Bill was in the House of Lords.

It was pointed out by Mr. Craig Henderson, in cross-examination, that, though the accounts of the two undertakings were to be kept distinct, the gas undertaking was handing-over fuel to the electricity undertaking and charging nothing for it; and he suggested that that was why Mr. Seabrook was able to show a profit from the first year's working of the electricity undertaking. [The net profit estimated for the first year was £532.] Witness replied that the surplus heat would otherwise be wasted. Questions were then put with regard to stand-by plant, it being stated by Counsel that if one generating set, of 50 KW. capacity, broke-down, the maximum output would be 30 KW. to meet a maximum load of 50 KW. Mr. Seabrook agreed, providing the 50-KW. set broke-down completely; but a breakdown might not necessarily involve the stoppage of the complete set. In answer to further questions, in which it was suggested that there was no stand-by plant provided, witness disputed this, saying that the scheme compared with similar schemes in this respect; he had provided what experience had proved to be sufficient, and there was sufficient stand-by plant provided except for about 100 hours or so throughout the whole year, when the demand was at its peak.

With regard to the generating station, Counsel was concerned because this was to be placed in the centre of the gas-works. If the present Bill were passed, the consent of the Electricity Commissioners would have to be obtained before the generating station could be erected, and they would have to take into consideration the fact that, whereas the Local Authority had statutory power to purchase the electricity undertaking, they had no such power to purchase the gas undertaking. Therefore, by placing the electricity generating station in the centre of the gas-works, surrounded on all sides by buildings, the local authority would be denuded of their statutory right to purchase it. Witness replied that in a previous case, where similar conditions obtained, it was provided that, if the local authority exercised their right to purchase the electricity undertaking, they could also purchase the gas undertaking by agreement. Counsel retorted that the local authority might not wish to do this, and added that a movement was on foot to make Horley an urban district, instead of part of a rural district as at present. Mr. Seabrook remarked that even if the Local Authority purchased the undertaking, they would not be able to supply electricity cheaper than the Gas Company could.

Mr. *A. E. Broadberry* (Director of the Tottenham District Light, Heat, and Power Company) gave evidence as to the success which had attended the supply of both gas and electricity in Wood Green, and stated figures to show that there had been rapid progress in that area in the development of both. Applying his experience to the conditions in Horley, it was fair to assume that the supply of electricity by the Gas Company would lead to equally good results. Further, the Horley Gas Company had an advantage which the Tottenham Company lacked at Wood Green—namely, the utilization of surplus heat from the gas-works for the generating of electricity. To show that the practice of joint gas and electricity supply was widely adopted in the United States, witness had procured a list of 384 American concerns which were supplying both commodities.

Mr. Craig Henderson, in cross-examination, suggested that the conditions at Wood Green and Horley were not comparable, because the gas-works and the electricity generating station for the former were a long way apart. To his suggestion that other companies were supplying electricity cheaper than were the Tottenham Company, Mr. Broadberry retorted that he must have picked out special cases, and himself referred to instances in which electricity companies were charging higher rates than the Tottenham Company.

Mr. *George Baker* (a resident of Horley) spoke of the desirability of a supply of electricity in Horley, and was of opinion that the residents stood a better chance of getting a supply from an established company than from a new company. He did not believe the gas consumers of Horley, as a body, had any complaint to make against the Gas Company.

Mr. *D. Napier-Whittingham* (Managing Director of the Sussex Electricity Supply Company, Ltd.) corroborated the statement that his Company wished to take a bulk supply from the Gas Company for the supply of Crawley. They would be unwilling, however, to arrange for a bulk supply from the Electricity Company, if the present Bill were rejected. Replying to Mr. Craig Henderson, in cross-examination, he admitted that, if he were satisfied that the new Electricity Company were sound enough to be able to give his Company a bulk supply of a sufficient quantity, over and above that required for the supply of Horley, his Company would rather take that bulk supply than generate electricity themselves.

Sir Harry Courthope-Munroe, in order to meet the objection by the petitioners that the price of electricity might be increased in order to reduce the price of gas and allow larger dividends, offered to insert a provision for the revision of the maximum prices for electricity by the Electricity Commissioners, in accordance with the provisions in the schedule of the Electricity (Supply) Act, 1922. The Gas Company, however, were still of the opinion that it was not really wanted.

This closed the case for the Gas Company.

Mr. W. Craig Henderson, in his address on behalf of the Electricity Company, impressed upon the Committee that it was the direct result of the possibility of a competitor coming into the field that the Gas Company had become seized with an affection for electricity supply. He also pointed out that never in the history of gas and electricity legislation had Parliament given a gas company electricity powers in competition with an electricity company who applied for powers at the same time. Dealing with the point made by the Gas Company, that when the Electricity Commissioners had granted the Electricity Company's Order the Gas Company had not been heard, he said that the Commissioners had only one scheme before them which they could consider. As to the procedure which should have been followed subsequently, he said that when confirmation of an Order was objected to in the House of Commons, the procedure laid down by the Speaker was that the matter should be referred to a Committee. The proper procedure for the Gas Company to have adopted would have been to have let the Electricity Company's Order come into the House, and to have got somebody to put up a motion against confirmation. Then the Order and the Gas Company's Bill would have come before a Committee as competing schemes. Instead of this, the Gas Company had lodged a memorial with the Ministry of Transport, objecting to confirmation of the Order, which rendered it necessary for the Minister to hold an inquiry, and the Electricity Company's scheme was held-up outside the House until the present Bill was heard. This procedure had put the Electricity Company at a disadvantage. In Horley the Gas Company had been selling gas without any competition, but when a competitor came along they wanted that competitor under their own control. He submitted most strongly and most confidently that it would not be in the interests of any public consumer in Horley that the electricity supply should be taken out of the hands of the local residents (who were so keenly interested in it as to put up £10,400 out of their own pockets), in order to give that power to supply to the Gas Company, who were only taking it up because they felt at last compelled to do so. At this point, Mr. Craig Henderson introduced a new aspect from which to view the whole question. It had been stated by both parties that it would have been preferable to obtain a bulk supply for distribution in Horley, if such a supply could be obtained on suitable terms; but that, owing to the difficulty of securing such a supply, each had decided to generate locally. It was now announced by Counsel that the Horley Electricity Company had made arrangements for a bulk supply from the County of London Electric Supply Company, whose super power station was at Barking, and whose mains stretched almost to the borders of Horley. The price was one which the Horley Electricity Company were willing to pay; and the arrangement would not only dispense with the proposal to erect a small generating station at Horley, but would bring to Horley an unlimited supply of power, which could be distributed at a reasonable price. It would carry out the policy which the Electricity (Supply) Act of 1919 had in view—namely, the grouping into centres of electricity generation, and the dispensation of the operation of small generating stations. As to the point raised by the Electricity Company, that, where gas and electricity were supplied by one company, any profits from electricity affected the price of gas, he said that Mr. Cash, in his evidence, did not gainsay it, but had said that it was checked by commercial considerations. But what kind of commercial considerations would one get from a gas company such as that at Horley, one of whose Directors had said in evidence that the amount of electricity he would sell in Horley would be small as compared with the amount of gas, and would not be sufficient to affect his dividends? Was that the kind of electricity development the Committee wanted in Horley? The Electricity Company wanted to do better than that, and wanted to be allowed the chance. They

would be good competitors with the Gas Company, and would make them do better as a gas supply authority. This sort of competition was the life of industry. In this particular case there was the first illustration of the proposed exclusion of a local electricity supply company, armed with a Special Order, as against a gas company which had never done anything much in the way of gas supply, let alone electricity supply.

Wednesday, May 20.

Mr. CRAIG HENDERSON, dealing with Mr. Seabrook's estimates of the working of the electricity undertaking by the Gas Company, stated that they were not worth the paper they were written on, because they were based on the supply to Horley alone, whereas it had now been stated that it was proposed to give a bulk supply to Crawley. If that were so, then the plant required would be quite different from that required if only Horley had been supplied.

Mr. *C. R. St. John* (Consulting Engineer advising the Electricity Company) gave evidence as to the scheme of the Electricity Company for supplying Horley, and referred to the delay which had resulted from his efforts to obtain a bulk supply in the first place, which did not materialize. He had then decided to erect a local generating station, but would not now proceed with this, in view of the offer by the County of London Electric Supply Company to supply in bulk. The terms for this bulk supply were to be £6 per kilowatt per annum, *plus* a running charge of 0·75d. per unit. Therefore, the tables he handed in to the Committee, to show the results of the working of the undertaking, differed from those submitted in the House of Lords, inasmuch as they were based on obtaining a bulk supply, and showed that in the first year he hoped to meet all charges without making a profit; in the second year he expected a surplus of £400; and in the third year a surplus of £1000.

Sir HARRY COURTHOPE-MUNROE, cross-examining, pointed out that, since the Electricity Company had commenced preparing their schemes, four different sets of figures had been produced. He also ascertained from witness that no contract had yet been made by the Horley Electricity Company with the County of London Company for a bulk supply, and suggested that the terms of the contract were still in the air.

Witness replied, however, that they were in an acceptable form.

In the course of further questions, Sir Harry obtained from witness the admission that there were no powers existing which would enable the main to be laid to carry the bulk supply from the termination of the County of London's Company existing mains to the borders of Horley, and pointed out that nothing was contained in witness's figures to cover the cost of obtaining such powers. He suggested that if the present Bill were thrown out, and the Electricity Company sought powers to carry their main over other people's territory, as they would have to do, some of the parish councils might raise objection—it was proposed to provide an overhead wire, which system was fruitful of opposition—and therefore, the position of the Electricity Company was not a safe one. Witness replied that he did not anticipate difficulty in this connection, and considered the present scheme a safer one than his previous plan.

Mr. *F. C. M'Quown* (Manager and Secretary of the County of London Electric Supply Company) corroborated the evidence that his Company were willing to give a bulk supply to the Horley Electricity Company if the latter Company obtained powers to supply in Horley.

Sir HARRY COURTHOPE-MUNROE pressed witness as to the position of the County of London Company's mains at the present time, and ascertained that they terminated at a point which was 9 miles from Horley as the crow flies, and 11 miles by road. It was explained that the County of London Company hoped to obtain powers to supply in part of the area between their existing area and Horley, and they would then provide four miles of the bulk supply main. The Horley Electricity Company would either obtain powers to supply in the remainder of the area between the two companies, or get a wayleave, and provide the other 5 miles of main. There were no powers existing at the moment, and Counsel pointed out that, if there was opposition, it would take time and cost money to get these powers.

Witness said that his Company would lay their part of the main in five or six months after obtaining the necessary Order. Re-examined, he said it was part of the policy of his Company to afford bulk supplies to companies who were distributing electricity only.

Sir *Harry Haward* (one of the Electricity Commissioners), questioned as to the complaint of the Gas Company that they were not heard when the Commissioners considered the Electricity Company's Order, said that the Commissioners could not have considered the Gas Company's scheme, because it was not before them. In some cases the Commissioners were asked specifically to hold a local inquiry, but no such request had been made in this case. (The evidence given is to the effect that the Commissioners were informed, before the Electricity Company's Order was granted, that the Gas Company intended to apply to Parliament for powers.) The general view of the Commissioners on the question of entrusting gas companies with electricity supply powers was that there might be cases where it was right and proper that the supply of electricity should be entrusted to a gas company, because this might be the only means by which a district could get a supply. Therefore, they did not consider that the proposal to entrust gas companies with these powers should be opposed on principle. They recognized, however, that on general grounds it was preferable that the supply of electricity should be in the hands of a body whose primary and sole duty was to supply electricity, where there was such a body able and willing to undertake it. At the same time, it must not be supposed that in every case the Commissioners would think it should be entrusted to an electricity company, because there might be cases in which a gas company could show an overwhelming advantage over an electricity company.

Mr. *R. L. Norris* (Chairman of the Horley Electricity Company) said that that Company could have raised more than the £10,400 of capital already raised, but for the rumours existing with regard to the opposition of the Gas Company to their scheme. He was not altogether satisfied with the Gas Company as a gas company, and considered that the Electricity Company would give a better supply of electricity than would the Gas Company.

Mr. *A. C. Cramb* (Chief Engineer and Manager, Croydon Corporation Electricity Department) expressed himself in favour of competition between gas and electricity undertakings, because it was a good thing for both. It would be unfortunate for the residents of Horley, in his view, if the supply of electricity and gas were under the same control. He gave figures showing the growth of the gas and electricity undertakings at Croydon, where there was active competition.

Sir HARRY COURTHOPE-MUNROE, summing up for the Gas Company, asked the Committee to consider the two schemes, as was done by the House of Lords Committee, and suggested that this was a case where Sir Harry Haward's remark as to a gas company showing an overwhelming advantage over an electricity company exactly fitted. The Committee, he said, were now asked by the Electricity Company to consider their fourth edition of figures; and the scheme as now put forward had not been considered by the Electricity Commissioners. This was an extraordinary state of things. If the Committee approved of the scheme, there was not a rag of certainty about it. The existing mains of the Company who were to give the bulk supply were miles away from Horley; and before they could get to work they had to get two, and possibly three, Orders. This meant delay; and if there were opposition when they applied for their Orders, there would be still more delay. After the Orders were obtained, they had something like eighteen months of work in front of them; and he considered that it would be three years before Horley had the least chance of getting a supply. Therefore, it seemed ridiculous to ask the Committee to throw out the Gas Company's Bill. If it were passed, there would be an obligation upon the Gas Company to supply electricity within one year. It had been suggested that the Gas Company would juggle with the accounts, but he was content to adopt any safeguard in that connection which the Committee could devise. Again, the Gas Company proposed to supply a larger area than did the Electricity Company. So strongly did he feel that the Gas Company were able to meet any competition that he suggested that they should be given their Bill, and the Electricity Company's scheme could be confirmed by the Minister of Transport, if he thought fit, and then there would be centred in Horley the most intense cut-throat competition there could be.

The Committee conferred in private, and their decision was that the Bill be rejected.

OLDHAM CORPORATION BILL.

This Bill was considered by the Unopposed Committee of the House of Lords, presided over by the Lord CHAIRMAN (the Earl of Donoughmore) on Tuesday, May 19, and ordered to be reported for third reading.

There are some clauses of a general nature relating to the Oldham gas undertaking (referred to in the "JOURNAL" for Jan. 21, p. 143), and there has been no substantial alteration to these.

APPLICATIONS FOR PATENTS.

[Extracted from the "Official Journal" for May 20.]

Nos. 12,160-12,873.

BISMARCKHUTTE [Firm of].—"Gas generators." No. 12,505.
BLAKE, T. V.—"Scrubbing gases." No. 12,341.
CHANCE BROS. & CO., LTD.—"Gas-measuring apparatus." No. 12,855.
CUTLER, S.—"Gasholders, tanks, &c." No. 12,787.
FEHR, E. F.—"Gas cocks." No. 12,748.
JAQUES, A.—"Scrubbing gases." No. 12,294.
KIRBY, J. I.—"Gas pendants, &c." No. 12,669.
LEVER BROS., LTD.—"Gas-heated apparatus for airing clothes, &c." No. 12,779.
MACKENZIE, M.—"Distillation of tar." No. 12,614.
MARKS, E. C. R.—"Purification of gases." No. 12,618.
MILBOURNE, R. J.—See Cutler, S. No. 12,787.
MORGAN CHEMICAL CO., LTD.—See Jaques, A. No. 12,294.
OUTWIN, E.—See Mackenzie, M. No. 12,614.
RADIATION, LTD.—"Gas-heating apparatus." No. 12,236.
RUDE, J.—"Production of coke, gas, and tar from solid fuel." No. 12,195.
SAYER, H. B.—See Lever Bros., Ltd. No. 12,779.
SEMET-SOLVAY ET PIETTE STE. ANYE., STE. DES FOURS A COKE.—See Marks, E. C. R. No. 12,618.
SYLVESTER, J.—See Mackenzie, M. No. 12,614.
THEISEN, E. [Firm of].—"Apparatus for purifying, cooling, mixing, &c., gases." No. 12,470.
WRAITH, H. O.—See Chance Bros. & Co., Ltd. No. 12,855.
YATES, H. J.—See Radiation, Ltd. No. 12,236.

Evesham Gas Undertaking.—The annual report and statement of accounts have just been issued in connection with the gas undertaking of the Evesham Town Council. The increase in the make of gas was 1¾ million c.ft. The revenue account showed the total expenditure to have been £26,609, and the total receipts amounted to £28,801, leaving a balance (gross profit) of £2192. The amount received from the sale of gas was £18,561, against £17,985 last year. The capital expenditure, after deducting depreciation, stood at 36,549. Stocks on hand were valued at £1441, and the amounts due from sundry debtors £5324. On the other side, the amount of loan outstanding was £35. The next payment would wipe out the loan altogether. Alderman Fisher, the Chairman of the Committee, in moving the adoption of the accounts, remarked that, in view of the reduction in the price charged for gas, and the depression in trade generally, he thought they would agree that they had had a satisfactory year's trading.

LEGAL INTELLIGENCE.

ELECTRIC LIGHT AT BARWELL.

The question of substituting electric light for gas in Barwell, Leicester, came before the Divisional Court on Thursday, May 21, before Mr. Justice SALTER and Mr. Justice GREER.

The matter was raised on an *ex parte* motion by Mr. J. B. MELVILLE, who said he had to move, on behalf of Mr. Thomas Powers, for a rule directed to Mr. Wm. Freer, Chairman of the Barwell Parish Council, calling on him to show cause why a writ of *mandamus* should not issue, directing him to hold a poll of the electors of the parish of Barwell. There was an affidavit by Mr. Powers in support of the motion. In this Mr. Powers said he was a farmer, and Chairman of the Earl Shilton Gas Light and Coke Company. He was the owner of property in the parish of Barwell, and a local government elector on the register of voters in force in the parish, which was a rural parish with a population of 3098 or thereabouts, with an assessable value of about £12,357. He had been a member of the Barwell Parish Council for the last fifteen years, and was also a member of the Leicestershire County Council. A printed notice of a parish meeting purporting to be issued by Mr. Wm. Freer, the Chairman, was published in the parish, for a special parish meeting to be held on May 4. The meeting was convened, said Counsel, with respect to a proposal to raise a loan of some £900 for the purpose of establishing electric lighting in the parish. He (said deponent) attended the meeting, and voted against the resolution. Seventeen voted in favour of it, 14 voted against it, and 20 did not vote at all. The resolution was then declared carried, on a show of hands. He (deponent) demanded a poll on the resolution; but the Chairman refused to take one. On May 8 he instructed his solicitors to write to Mr. Freer informing him that unless notice of a poll was issued within seven days, in accordance with his request, application would be made to the High Court for a *mandamus* to compel him to carry out his duties according to law. Mr. Freer's reply to that letter, said Counsel, was addressed to Mr. Powers' solicitors. In it he said: "Your letter did not come as a surprise, knowing your client's love for the law and his many threats when crossed or baulked in any matter invoking its aid. I may say, as far as I am concerned, I do not accede to your client's demand for a poll. After giving the matter further consideration, I see no reason to alter my decision. According to my lay mind, I am justified in the course I have taken, and you may take what course you or your clients may desire." As a result, this application was made, added Mr. Melville, and the question involved was whether electric light should be substituted for gas, which had been previously supplied by the Earl Shilton Gas Company to this parish under the Local Government Act of 1894.

In the result, the Court granted a rule, to be returnable for argument one day early next term.

MISCELLANEOUS NEWS.

GAS REGULATION ACT APPLICATIONS.

The following notices have appeared in the "London Gazette" regarding applications to the Board of Trade under the Act.

SPECIAL ORDERS.

Langley Mill and Heanor Gas Light and Coke Company, Ltd.

The Company intend to apply for an Order under section 10, authorizing them to extend the limits of supply, to raise new capital, and to make provision for the more efficient conduct of the undertaking.

Hornsey Gas Company.

The Company intend to apply for an Order to authorize them to convert existing stock and create new stock, to define dividend rights, &c., to make provision as to borrowing, and for other purposes.

Oswaldtwistle Urban District Council.

The Council are applying for an Order to enable them to purchase additional lands, to make regulations regarding the laying of pipes, to charge on a thermal basis, to borrow money, and to fix the maximum price of gas at 1s. 3d. per therm.

Low-Temperature Carbonisation.—A circular has been issued by Low-Temperature Carbonisation stating the reasons for the creation of £500,000 of new debenture stock. This was agreed to at a meeting of stockholders held on May 5. It is an income charge issue, bearing 8 p.ct. interest cumulative, and the right to participate in profits for a further 4 p.ct. The amount to be issued at once is £300,000. It is offered at 95. The remaining £200,000 is held in reserve for exchange for the existing 6 p.ct. first mortgage debenture stock, or alternatively for issue in connection with the acquisition and completion of further contracts for the erection of low-temperature plants in the principal industrial centres.

Houghton-le-Spring Gas Company.—At the annual meeting of the Houghton-le-Spring Gas Company, of Durham, a satisfactory report was submitted; but the Chairman (Mr. W. A. Surridge) said he was afraid the outlook in regard to residuals was still unfavourable. They had already reduced the price of gas, and proposed to make another reduction shortly. A new holder was almost completed, and would be put into use shortly. They had entered into an agreement to take a supply of coke-oven gas from adjacent collieries, and expected it would enable them further to reduce the price of gas. The Board proposed to make an issue of new capital. A dividend of 7 p.ct. on the ordinary shares, compared with 6 p.ct. last year, was agreed to.

SAFEGUARDING OF INDUSTRIES ACT.

Gas Mantles.

The Inquiry into the application of the Incandescent Mantle Manufacturers' Association for the imposition of a duty on imported gas mantles, under the Safeguarding of Industries Regulations, was opened at the Board of Trade Offices on Monday, May 18. The Committee consists of Sir FREDERICK MILLS, Bart., Sir JOHN BARRAN, Bart., and Mr. J. ARTHUR AITON.

The Incandescent Mantle Manufacturers' Association were represented by Mr. J. P. H. Soper (Managing Director, Monarch Mantles, Ltd.). There was opposition to the imposition of a duty by a group of importers of foreign mantles, members of the London Chamber of Commerce.

Mr. *Soper*, before giving evidence, dealt with the instructions to Committees set up to inquire into applications under the Safeguarding of Industries Regulations, in their application to this particular inquiry, and showed how these instructions had been interpreted by the Association. The first point upon which it was the duty of the Committee to report was whether the industry was one of substantial importance, from the point of view of the employment it afforded. He claimed that the mantle industry was of importance by reason of the nature of the goods it produced. Gas was probably the principal source of artificial light in the country at the present time. The gas mantle was the key to modern gas lighting and to modern gas production.

The next point to be considered by the Committee was whether foreign goods of the class or description to which the application related were being imported into, and retained for consumption in, the United Kingdom in "abnormal" quantities. He thought it could be said that practically the whole of the foreign mantles that came to this country were retained for home consumption. Foreign mantles only entered into the export trade of this country to a negligible degree; British manufacturers held what export trade there was, and they were enabled to do this by reason of the preference which was granted to British-made goods by the Dominions. The important word in this part of the instructions to the Committee was "abnormal." He believed it had been suggested as a general test that the relative home and foreign trade in the goods, in respect of which an import duty was sought, before the war should be regarded as normal. He claimed, however, that pre-war conditions so far as gas mantles in this country were concerned were not conditions of fair competition. The trade in gas mantles was then dominated by Germany, who had secured the control of the monazite sands. He suggested that the standard for the normal quantity of sales of home-manufactured mantles should be determined by reference to the importance of the article. If the Committee could be satisfied that the gas mantle was an article of national importance, then the home manufacturers should have high percentage of the home trade. If it were found that the home manufacturers were in jeopardy through the volume of imports, and were only retaining a portion of their business by selling mantles at unremunerative prices, then he submitted that imported mantles were being retained in this country for home consumption in "abnormal" quantities. The percentage of sales held by British manufacturers was steadily falling, and during the last three months it had declined to an alarming extent.

The next question for the Committee was whether the foreign goods so imported were being sold or offered for sale in the United Kingdom at prices below those at which similar goods could be profitably manufactured or produced in the United Kingdom. He submitted that the Committee had to determine total competition, and not isolated instances. To the average prices shown by the Customs returns there should be added a small amount in respect of the duty levied on the thorium contents, and allowance must be made for the cost of clearance from the docks to customers' warehouses. The addition in respect of these two items was about 1s. or 1s. 6d. per gross.

The Committee had also to decide whether such exceptional competition came largely from countries where the conditions were so different from those in this country as to render the competition unfair. The Incandescent Mantle Manufacturers' Association made their complaint against four Continental importing countries—namely, Germany, who were the principal competitors, and whose imports came in at the highest price; Poland, formerly a small competitor, but whose exports to this country were increasing in volume; and Austria and Italy, whose volume was comparatively small, but whose prices were lower than those of the other two countries. The Association were informed, and believed it to be a fact, that it was to expect the importation of some two million mantles from Italy during the next season. These were countries in which depreciation of currency had taken place two or three years ago, and where the currency had now become stabilized; but the depreciation which had occurred had left a permanent mark on the state of affairs in those countries, and gave the foreign manufacturer an advantage over his British competitors, particularly as to overhead charges. A more tangible ground for complaint against unfair competition was concerned with the inferior conditions of employment of labour, particularly in regard to wages. The highest Continental figures for wages were 50 p.ct. below the wages paid in British factories. Lower wages also had an effect on the price of raw materials, because the raw materials used in the mantle industry were the finished products of other industries, in which the cost of labour entered very largely. Foreign competitors were able to obtain their nitrate of thorium and other goods required for manufacturing mantles, in the majority of cases, at prices lower, and in some cases considerably lower, than the prices paid for similar goods by British manufacturers.

The Committee were entitled to consider whether the industry in this country was being carried on with reasonable efficiency and economy. Regarding this point, Mr. Soper referred to the evidence given at the previous inquiry in this connection, as the result of which a duty was imposed on foreign mantles under Part II. of the Safeguarding of Industries Act, 1921, and said that British manufacturers were now

getting a substantial increase in output per worker per hour, as compared with the output at the time of the previous inquiry.

Then the Committee were entitled to consider whether the imposition of a duty on gas mantles would exert a seriously adverse effect on employment in any other industry using goods of the same class in production. The only way in which a duty on mantles could affect another industry would be that, if the cost of mantles were seriously raised, it might raise the cost of lighting in factories where gas was used as an illuminant; but, whatever duty was placed on imported mantles, it would not have that effect.

Finally, the Committee were asked to express an opinion as to whether the applicant industry had established a claim to a duty, and, if so, what rate or rates of duty would be reasonably sufficient to countervail the unfair competition. In this connection Mr. Soper submitted that a flat rate on mantles would be preferable to an *ad valorem* duty.

With regard to employment, a table showed that the number of workers employed in this country each week totalled over 3000 throughout 1920, and in the last quarter of 1921 there were 2230. The figure had dropped to 1211 in the second quarter of 1922; in the last quarter of 1923 there were 1979; and in the last quarter of 1924, 1760. When the duty on imported mantles came off, employment was reduced, and the number employed at the end of April this year was about 1540. These workers were employed directly in mantle manufacture. It was difficult to estimate how many were employed indirectly, but Mr. Soper produced a table showing the principal raw materials used, and indicating the extraordinary ramifications of the industry and the indirect employment afforded.

The CHAIRMAN said one could not regard the mantle industry as one of the leading industries of the country.

Mr. *Soper* said it was not put forward as such. The Association regarded it as one of national importance, however, having regard to the nature of the goods produced.

The CHAIRMAN asked why it was of national importance that consumers should be able to buy British mantles. If they could get them cheaper from abroad, why should not they?

Witness said that, when war broke out, the industry was unable to supply either its own raw material or the finished mantles which the country required; and a very serious state of affairs had arisen, which served to emphasize the national importance of the industry. It was essential that the industry should be maintained in such a state that it could supply the whole needs of the country in a time of emergency. The total sales of British mantles, less exports, between the years 1920 and 1924, showed an average annual sale of about 430,000 gross. Also, better mantles were being made every day, and they lasted longer than those made previously. The condition of industry affected the gas mantle industry, because a substantial number of mantles were used in factories. In support of the view that the gas mantle industry was not a dying industry, he said that statistics showed that the number of street lamps using gas in the country had increased from 697,000 in 1919 to 719,000 in 1924—an increase of over 20,000. The number of consumers of gas had increased in the same period from 8 millions to 8¼ millions. This showed an increasing demand for gas for lighting, as well as for other purposes. In the same period there was an increase of 336,000 users of slot meters, showing an increase in the use of gas among the poorer classes. Again, sales of gas lighting appliances had been increasing continually during the last two or three years. Another point which had a bearing on the demand for gas mantles, *qua* mantles, was the installation of clusters of lights in street lamps in place of a single light; and there appeared to be an increasing tendency to instal this system of lighting.

In reply to Sir John Barran, witness said that, if British mantles ceased to be made, the effect would be prejudicial to the production of gas in this country, and to the production of valuable products obtained from gas manufacture; because, if no gas mantles at all were available, gas as now manufactured would be useless as an illuminant.

Sir JOHN BARRAN said the Committee would want to know whether the gas could be used up in its entirety for cooking, even if it were not used as an illuminant.

In answer to a question, Mr. Soper said he did not think a duty would materially increase the price of mantles to the consumer, because he was not at present getting the advantage of the low prices of imported mantles. It was not proposed to offer evidence as to the control of export prices in Germany, which was an important matter at the previous inquiry, because there was no price association in Germany at present, and German manufacturers were importing independently, so far as he knew.

The Committee adjourned until Friday, May 22.

CAPETOWN AND DISTRICT GAS LIGHT AND COKE COMPANY, LTD.

Dividend Maintained.

The Thirty-Fifth Ordinary General Meeting of the Company was held last Wednesday at the London Offices, No. 38, Grosvenor Gardens, S.W.—Mr. H. R. SAVORY (the Chairman) presiding.

The SECRETARY (Mr. R. W. Blackburn) read the notice convening the meeting and the Auditors' report; and the Directors' report and the statement of accounts for the year to Dec. 31 were taken as read.

The CHAIRMAN said that the year 1924 opened with rather better prospects for general trade in Capetown than previously, and business continued to improve for the first three months; but afterwards general trade declined, and it was not until near to the close of the year that there were any signs of improvement.

AN INCREASED PROFIT.

It was gratifying to the Directors that the report and accounts which they submitted for approval that day might be considered satisfactory. The result of the year's working showed an increase in income and an increase in profit. The increase in income was not a large one; and the increase in profit was mainly due to economies in general working. The Company had had a full year of the use of the No. 2 installation of vertical retorts, through which 13,010 tons of South African coal had been carbonized. A saving of 1228 tons of coal had been made, and a larger output of gas had been obtained—14,884 c.ft. per ton. The decrease in coal used had resulted in a saving of £3220 in the cost of coal for last year. The coal used produced a good volume of gas, and the yields of coke and tar were fairly adequate.

REVENUE ACCOUNT.

Comparing the revenue account with that of the previous year, expenditure on manufacture and distribution had decreased £3125; the cost of repairs and maintenance of works, plant, and mains had been reduced £1141. These, with other smaller economies, resulted in a reduction of total expenditure of £3883. On the revenue side of the account, revenue from the sale of gas and rentals of meters, cookers, geysers, and other fittings showed an increase of £1302. Sales of fittings were £216 higher; but sales of residuals were less by £475. The profit for the year was increased by £4553—a result which might be regarded with satisfaction. The increase in the quantity of gas sold was equal to 1·3 p.ct., there having been a better demand for gas by the users of prepayment meters. On the other hand, sales of gas by ordinary meter and those to large consumers for industrial purposes were slightly reduced. This was due to the closing-down of several of the canning factories for many months, and also in some measure to the British Empire Exhibition at Wembley attracting visitors from Cape Town.

RESIDUALS.

The coke sales increased by 15,099 bushels last year; but the average price obtained was not quite so good—being 2d. per bushel below that of the previous year. Sales of tar were lower than in 1923, less tar having been made, owing to the smaller quantity of coal carbonized. But all the tar made was sold. The average price obtained for tar was less by ½d. per gallon. It was necessary to reduce prices of both these residuals, in order to compete with the import prices.

DISTRIBUTION.

There were 5873 yards of mains of various sizes laid last year—principally at Sea Point, at Green Point, and at Pinelands Garden City, enabling new properties to be connected and fitted for supplies of gas. Continuous and systematic search for faults in mains and services was carried on, and many repairs were executed. Gas for cooking and heating increased in popularity, and 249 new consumers were added during the year. The average value of ordinary meter consumers' accounts was less by 1s. 4d. than in 1923; but the average receipts by prepayment meters increased by 2s. 11¼d. per meter. The policy of the removal of the showroom and offices into the business quarters of the city continued to be fully justified; increased numbers of cookers, stoves, geysers, and other fittings having been sold. The Company's system of propaganda for making known the various uses of gas by means of advertisements, posters at railway stations, and lectures with cookery demonstrations, had been steadily pursued. These demonstrations were so well attended that on some occasions the accommodation was insufficient for all those persons who wished to be present. The Pinelands Garden City Estate had been linked with the Company's mains by 6-in. pipes, and by the end of last year 66 houses had been connected and supplied with gas. They were now in a position to connect the new houses as erected; and the demand for houses continued to be brisk.

PROSPECTS.

Mr. Blackburn, a member of the Board, visited the Cape in the autumn of last year, and would presently give them an account of the conditions he found existing at Cape Town, and an indication of what were the prospects for increasing business by future extensions. As to the outlook for the current year, a steady increase in the number of consumers was being obtained. The working of the plant was very satisfactory, and the capacity amply sufficient to supply any increased demands. Applications for supplies of gas were being received and dealt with. It could not be expected that they would be able to continue indefinitely to make further large economies in the cost of working. They must look to increasing the number of their consumers, and to giving satisfaction to them, in order to maintain and increase revenue; and in this the additions to the mains already made, and those to be made this year, should be of very considerable assistance. He concluded by moving that the report and accounts be adopted, and that a final dividend of 4 p.ct., less tax, making, with the interim dividend already paid, 7 p.ct. for the year, be declared on the ordinary shares.

MR. BLACKBURN'S ACCOUNT OF HIS VISIT TO SOUTH AFRICA.

Mr. R. W. BLACKBURN, in seconding the resolution, said that in view of his visit to Cape Town last year, it might be of interest if he touched as briefly as possible upon some aspects of the Company's business. The Chairman had told them that the manufacturing plant was now ample to meet all possible demands for some years, and that, although the output of gas had increased, some 1200 tons of coal were saved during the year—the average gas made improving to nearly 15,000 c.ft. per ton of coal carbonized. The calorific value of the gas supplied was not sacrificed in order to obtain this result. It was maintained throughout the year well above the Company's statutory standard, with a total absence of complaints. Now, in dealing with these results, it was fair to have regard to the fact that they had been obtained under what in this country would be termed somewhat adverse conditions. They used South African coal exclusively. Analyses of this coal showed a volatile content of some 30 p.ct. below that of a good average English coal, and an ash content very much higher. The coke produced, though of excellent quality, was subject to somewhat rapid attrition; and the tar yield also was not high. These factors, of course, affected the revenue from residuals. Coal had to be freighted by rail nearly 1000 miles, and during this long

transit a certain percentage was lost through windage and shaking. Notwithstanding these disadvantages, and the fact that residuals at Cape Town, in common with the rest of the world, commanded lower prices during the year, nearly 66 p.ct. of the cost of coal carbonized was recovered from the sale of residuals; and this, they would agree, reflected credit on the Engineer responsible for the working of the Company's plant. The improvement in working was more marked during the latter half of the year. He would add that, although the average results, compared with the previous year, were relatively good, this did not preclude the Board from expecting some further improvement during the current year.

CONDITIONS AT CAPETOWN.

Now to come to what at the present time was highly important—distribution. The conditions in which gas had to be supplied at Cape Town were very different from those obtaining here. Density of population was very much less. The majority of houses built were of the detached type, situate well back from the roads; and though from a residential aspect this offered advantages, it had disadvantages from the point of view of gas supply, and expenditure necessary in connecting-up new consumers. They would, perhaps, more readily realize the scattered nature of the districts served when he told them that the Company now had in Cape Town and suburbs over 120 miles of mains in operation, supplying some 6200 odd consumers. Building was proceeding apace. Electrification of the railways was projected, and new districts are rapidly being opened-up; and if advantage is to be taken of these opportunities, if the Company's business is to expand, and to continue to progress satisfactorily, it is obvious that they are faced with very considerable further expenditure. The question of extensions was one of the several important matters which necessitated his visit to Capetown last year when the whole position of the Company's business, its prospects and possibilities, were exhaustively reviewed. As a result, a definite policy had been formulated, and within the limits of their resources was being carried out. From the closer, and, he hoped he might say, very cordial co-ordination established in the Company's affairs, the Directors were reasonably expecting in the near future considerable further improvement of business on the distribution side. He was particularly pleased with the design and lay-out of the showrooms. They were situate in an admirable position, in one of the two best business thoroughfares in Cape Town. They had heard from the Chairman that 249 new consumers were obtained during the year. He would amplify this by telling them that 408 gas cooking appliances, 222 geysers, and 46 gas fires were installed in 1924. The demonstration of gas appliances, &c., at the showrooms had undoubtedly proved of great benefit, and had helped also in regard to the development of gas for industrial purposes. This latter branch was being systematically pushed. They already had some very considerable new consumers; and the prospect of further good business was encouraging. In these times he would not care to risk any prophecy. He thought, however, from what he had said they would agree that signs were apparent which pointed to steady progress—with this proviso: That the Union of South Africa, and more particularly Cape Town, as affecting the Company's activities more closely, remained free from further ill-advised industrial disturbance of trade and commerce, such as the strike which held up all business in the building and allied trade for over two months during his visit.

ADMINISTRATION.

From the accounts before them, it would be seen that the position was very healthy, compared with even a few years back. He wished to emphasize one important point. They had not made any capital borrowing during the year to meet the cost of extensions. This cost had, up to the present, been financed out of income. They would see from the balance-sheet that cash in hand at Dec. 31 last, amounted to in round figures £5000—just about sufficient to meet accrued interest on debentures payable on Jan. 1 of this year. They had spent to the limit of their resources. There was no margin; and in this fact, he thought, lay the answer to what he might be permitted to call the somewhat pointed inquiries which he had received from several shareholders on the question of dividend distribution. It was, of course, obvious that, but for the expenditure on extensions to which he had alluded, a larger distribution on the ordinary shares than the one now recommended would be possible. The Directors were very considerable shareholders; and Mr. C. W. Lilley controlled what was by far the largest individual shareholding in the Company. They would all be pleased to receive a higher rate of dividend; but, after very careful consideration, it was clear to the Board that what might be termed a conservative policy in this respect must be adhered to during such time as extensions had to be dealt with out of income, and until the period arrived when this outlay bore fruit. The aim had been to pay a dividend which could be counted upon as stable, not liable to fluctuations—at any rate, not to fluctuation in a downward direction—and the dividend of 7 p.ct. now recommended was in accordance with this policy. It was one which he hoped they would thoroughly endorse. During his stay in Cape Town, he, of course, came into every-day personal contact with all grades of the employees. He took this opportunity of acknowledging the keen interest shown in all that could assist the progress of the business by the Local Consulting Director, Dr. Bennie Hewat. He was a gentleman who was very conversant with all Union conditions, and particularly with local affairs at Cape Town; and in any matter likely to affect the Company's interests he was always available for consultation and advice. Their Cape Town Auditors have acted for the Company for a very long period, with entire satisfaction to the Board. Their checking and audit of the accounts there was very thoroughly carried out, and he would like to say that their Chairman (Mr. E. R. Syfret) was of very considerable assistance to him in some important matters of the Company somewhat outside the usual scope of his firm's services. For this he was personally extremely indebted to him, Mr. Syfret; and the Board very much appreciated it. In concluding, it was fitting that he should pay a tribute to the good work during the year under review of the General Manager, Engineer, Distribution Superintendent, and their respective staffs at Capetown and Woodstock. The aim, and endeavour, of a public utility undertaking such as theirs was, should be to supply the public it served with gas and residual products of excellent quality, coupled (equally as important) with efficient and courteous service. As a result of attention to this policy, the undertaking now enjoyed, and deservedly enjoyed, a high repute. Such a standard could not have been attained, and it certainly could not be maintained, without the energy, the zeal, and above all the loyal co-operation displayed by the Company's employees; and he was pleased to be able to report, from personal observation and from other sources available to him, that the business was so capably and so loyally served by its responsible officials and the general staff.

Mr. A. R. Burch said that, as an old Gas Engineer, he would like to endorse what Mr. Blackburn had told them with regard to the difficulty of making gas out of what was really steam coal, instead of gas coal. Had the Board ever investigated the possibility of obtaining coal from Australia? The conditions described by Mr. Blackburn revealed an excellent field of high-pressure distribution, which meant a smaller outlay on mains. As to the dividend, the price charged for gas was high; and the great object should be to decrease it in every way possible.

Mr. E. Nicholls regarded the report as exceedingly satisfactory. The policy of sending out Mr. Blackburn to inquire into things on the spot was very much to be commended; and if this plan was followed from time to time, so as to keep in closer touch with affairs out there, it would be an advantage.

Mr. A J. Kingdon asked what was the total quantity of gas sold during the year. He congratulated the Directors on the report and accounts, and trusted they would continue the wise policy of augmenting the reserve fund until the Company was placed in a strong financial position.

Mr. Whittaker inquired as to the percentage of unaccounted-for gas.

Mr. Blackburn replied to these questions, and to one or two remarks regarding the accounts. He said the Company had at the present time no capital available for undertaking high-pressure main extensions. The extensions which were being undertaken at the present time were those which came within the radius of existing mains. The manufacturing plant was ample; and it was only by increasing the consumption on the existing mains that they could hope for augmented profits. The total sale of gas was 155 million c.ft. in round figures. They had spent over £9000 on extensions during the year; the bulk was on distribution account. Gas unaccounted for per mile of main was, he thought, fairly comparable with that of any gas undertaking he knew of—290,000 c.ft. The sudden variations of temperature in Cape Town had to be taken into consideration in this connection.

The resolution was then put to the meeting and unanimously carried.

Mr. C. W. Lilley proposed the re-election of Mr. Blackburn as a Director. He pointed out that Mr. Blackburn had been appointed to the Board while acting as Secretary, which position he had filled for many years. When he became a Director, it seemed to the Board very desirable that his great knowledge and experience of the business should be utilized in a visit to Cape Town. From this visit the Board hoped to get good results in the future, as he believed they had done already.

The Chairman seconded the motion, which was agreed to.

The Auditors (Messrs. Kemp, Chatteris, Nichols, Sendell, & Co.) were, on the proposition of Mr. Kingdon, seconded by Mr. Whittaker, reappointed, at a fee of 100 guineas, in place of 80 guineas as heretofore; and the proceedings terminated with votes of thanks to the Chairman, Directors, and staff, both in this country and South Africa, for their excellent services to the Company.

Shrewsbury Gas Light Company.—At a meeting of the Shrewsbury Town Council last week, Mr. L. Jackson moved the following resolution: "That the Council is of opinion that in the interests of the townspeople, the undertaking of the Shrewsbury Gas Light Company should be the property of the Corporation, and instructs the Finance, General Purposes, and Parliamentary Committee to bring up a report to the Council on the matter at the September meeting of the Council."

Discontinuance of Public Lighting at Hereford.—The Hereford Town Council have decided to discontinue the public lighting during the summer, with the exception of twelve 1500 C.P. lamps situated in the principal squares and at dangerous corners. These will be lighted from dusk till dawn. The cluster burners in 24 sewer lamps will be plugged-up, with the exception of one nozzle in each lamp. One No. 2 nozzle in each sewer lamp will be kept alight (with mantle) night and day, primarily for sewer-gas extraction purposes. The discontinuance of the bulk of the public lighting is from May until the first week in September, when the lamps will again be lighted from dusk till midnight.

Progress at Spalding.—Reference was made in the Spalding Urban District Council, by the Chairman of the Finance Committee, to the continuous progress of the Gas Department. The make during the past financial year, he said, was 80,282,000 c.ft., which was an increase of 3,450,000 c.ft. over the previous year; and this, bearing in mind the steady rise in output over the preceding four years, was very gratifying. The system of selling gas cookers by hire-purchase, which had been adopted on the suggestion of the Manager (Mr. R. J. Calderwood), has proved very successful; and much is hoped from the fine new showrooms. The Chairman cited the reasonable charges for gas—large consumers for power purposes can obtain it at 3s. per 1000 c.ft.—as proof of the admirable way in which the gas undertaking is managed.

STRETFORD AND DISTRICT GAS BOARD.

An exhibition and series of cookery demonstrations has recently been held at the Public Hall, Urmston.

The Chairman of the Board, Councillor R. J. M'BEATH, J.P., C.C., in opening the exhibition on May 4, said that the object was to give the consumers of the district an opportunity of obtaining information how to make the best use of the gas supply in their homes. Since the Board took possession of the gas-works at Stretford, the number of cookers in use in the area had increased from 4700 to nearly 8000, and the number of fires from 3000 to 3700. The total gas made in the last complete year prior to the Board's possession of the works was 518¼ million c.ft.; and for the year ended March 31 last, 700 millions had been manufactured. Gas used for industrial purposes has increased from 114 million to 166½ million c.ft. In order to bring special patterns of highly-finished cookers, fires, water-heating apparatus, and wash boilers within the reach of all consumers, the Board had introduced a hire-purchase system.

During the run of the exhibition Miss H. H. Tuxford, M.C.A., gave demonstrations in cookery by gas; and the visitors benefitted by the instruction and help given.

TRADE NOTES.

Messrs. Firth Blakeley, Sons, & Co.

This firm have published a booklet in which are illustrated some of the plant they manufacture. Several of the photographs refer to different types of gasholders.

Correction.

In our "Trade Notes" last week a new catalogue issued by Messrs. W. C. Holmes & Co., Ltd., was mentioned. In this reference was made to the Wikner system. Unfortunately the name Wikner was mis-spelt.

"Ferro-Concrete Structures for Gas-Works."

This is the title of an illustrated booklet recently issued by the F.-C. Construction Company, Ltd., of Derby, which contains particulars and photographs of some of the many contracts which the firm have successfully carried out.

Steam Dryers.

Messrs. James Gordon have published a new leaflet dealing with the Massip steam separator or dryer. Thousands of these separators are at work, and they have been adopted largely in this country by leading engine builders, such as Messrs. Sultzer, Bros., John Musgrave & Sons, Ltd., and Galloways, Ltd. These appliances are of British manufacture throughout.

Ciment Fondu.

The Lafarge Aluminous Cement Company, Ltd., of Lincoln House, Nos. 296-302, High Holborn, W.C. 1, have published an interesting booklet dealing with their special product, Ciment Fondu, which is a high-aluminous cement giving extremely high compression strength at twenty-four hours. The pamphlet gives comprehensive data concerning its discovery, qualities, and its fundamental difference from Portland cements. It also indicates cases where much time might be saved, and reduction in costs effected, by its use. The pamphlet will serve as a handy little book of reference for engineer, contractor, and architect.

CONTRACTS OPEN.

Coal.

The Gas Committee of the Sutton-in-Ashfield Urban District Council are inviting tenders for the supply of 8000 tons of gas coal. [See advert. on p. 618.]

The Newbury Corporation Gas Undertaking are inviting tenders for South Yorks. and Derbyshire gas coals for a period of twelve months. [See advert. on p. 618.]

The Council of the Urban District of Spenborough are inviting tenders for the supply of about 20,000 tons of screened gas coal or nuts for their Cleckheaton and Heckmondwike Gas-Works. [See advert. on p. 619.]

The Hebden Bridge and Mytholmroyd Gas Board are inviting tenders for the supply of 7000 tons of gas nuts. [See advert. on p. 619.]

The Gas Department of the Clacton-on-Sea Urban District Council are inviting tenders for the supply and delivery of 6000 tons of best screened gas coal. [See advert. on p. 618.]

Retorts (Horizontal and Vertical), **Retort Houses, Coal and Coke Handling Plants, &c.**

Tenders are invited by the Gas Committee of the Manchester Corporation for horizontal and vertical retort installations, retort houses, and coal and coke handling plant, &c. [See advert. on p. 618.]

Purifiers, Connections, &c.

The Gas Committee of the Manchester Corporation are inviting tenders for purifiers, connections, and lifting apparatus. [See advert. on p. 618.]

Reduction in Price at Sedgley.—The Sedgley Urban District Council have decided to reduce the price of gas commencing with the current quarter. The charges will now be 4s. per 1000 c.ft. to ordinary consumers, and 16 c.ft. per 1d. for slot consumers.

Croydon Gas Company's Co-Partnership.—The report of the Co-Partnership Committee for the year ended March 31 last has been issued. The bonus is at the rate of 6½ p.ct. (the same as for the previous year), being the average rate at which dividend was paid on the sliding-scale stock of the Company for 1924. Up to March 31, from the inception of the scheme, in 1909, 1541 co-partnership agreements have been entered into, and 660 have terminated, leaving 881 in force.

NORTH-EAST COAST COAL TRADE.

From our Own Correspondent.

By almost common consent, the past week has been the worst so far experienced, at all events, as far as Durham is concerned. Northumberland steams were weaker all round, and in most cases about sixpence lower than in the previous week. There appeared to be no interest in Durhams at all, and it was more a question of entire absence of demand than of price.

Production will be curtailed this and next week owing to Whitsun holidays, but it seems extremely doubtful whether this will affect the position at all. Inquiry is entirely lacking, both for prompt and forward shipment.

Wear Specials and the best quality gas makes are quoting 19s. f.o.b., but few are in a position to hold out for this price except by working short time. Seconds are 16s. 6d. to 16s. 9d. Unscreened coking is an extremely weak market, and best sorts are obtainable at 16s. 9d. to 17s. Best Durham bunkers are offering at 17s. to 17s. 6d. But, as already stated, there does not seem to be enough trade at any price, and, even at these lower levels, collieries are faced with idle time, and more and more notices are being given on all sides. Still, some sections of the miners at the delegate conference last week were in favour of proceeding with additional wages demands, though it is true they were in a minority. The policy of the less optimistic majority appears to have been to hold on to what they have got as long as they can. But more than this will have to be done to reduce our costs to a competitive level.

YORKSHIRE AND LANCASHIRE COAL TRADE.

From our Local Correspondent.

There is no material alteration in the Yorks. and Lancs. coal market this week. The irregular working of collieries is likely to continue, partly because of the lack of export business which in normal times relieves the market of superfluous screened coal.

The industrial outlook continues black, and the position is worse than it was some months ago; the iron and steel trades being particularly affected. As a result, many collieries have on hand stocks of the smaller grade fuels; and these are being offered at discounted figures without apparently bringing about the desired results. Consumers have difficulty in taking even their limited contract deliveries.

Gas coals continue to be inquired for under contract for delivery over twelve months beginning either in July or August, and the general attitude of producers appears to be one of uncertainty. Figures for the same class of coal vary at different points in accordance with the local situation.

The shipping outlook shows no improvement; and should the present situation continue, there will be a serious financial proposition for the collieries to consider in view of the larger outputs which Germany is producing and selling to customers who previously took British coal.

The following are the Humber bunker and export prices (f.o.b. usual shipping ports): South Yorkshire—Hards, Association, 20s.; screened gas coal, 18s. to 18s. 6d.; washed trebles, 19s. 6d. to 20s.; washed doubles, 17s.; washed singles, 16s.; washed smalls, 11s. 9d. to 12s. 3d.; unwashed doubles, 16s.; rough slack, 10s. to 10s. 6d.; smithy peas, 19s. to 20s. per ton. West Yorkshire—Hartleys, 17s. to 18s.; screened gas coal, 17s. 6d. to 18s.; washed trebles, 18s.; washed doubles, 16s. to 17s.; washed singles, 15s. 9d. to 16s. 3d.; washed smalls, 11s.; unwashed trebles, 17s. to 17s. 6d.; unwashed doubles, 13s. to 14s.; rough slack, 10s.; coking smalls, 8s. 6d. to 9s. per ton. Derbys and Notts.—Top hards, 20s.; washed trebles, 17s. to 19s.; washed doubles, 16s. 6d.; washed singles, 15s. 6d.; washed smalls, 11s.; unwashed doubles, 14s. to 15s.; rough slack, 10s. to 10s. 9d. per ton. Yorks, Derbys, and Notts.—Screened steam coal, 15s. to 17s.; gas coke, 20s. to 21s. 6d.; furnace coke, 15s. 9d. to 16s. 9d. per ton.

The highest classes of Lancashire slack are selling at from 15s. to 17s. per ton at the pits. Industrial coal is 21s. per ton at the pits.

COAL TRADE IN THE MIDLANDS.

From our Local Correspondent.

The anxiety of collieries to keep down stocks results in the market being inundated with supplies—offered in many cases at prices appreciably lower than those previously ruling. Endeavours are being made to impress householders with the advantage of filling their cellars at these low rates. Very little success attends these efforts, however. Last year, when the buying of domestic supplies for the winter was accelerated in some measure, householders who procrastinated had to pay for their indecision, the rush of demand which followed the holiday season giving a sharp impetus to prices. It is difficult to enforce the lesson, however, in the present glutted state of the market. Bakers' nuts can be bought at the normal price of good slack. All grades of industrial fuel reflect market deterioration. It is a common complaint that wagons are not earning anything like sufficient to make ends meet. In the circumstances which prevail, long railway hauls represent such a disproportionate ratio of cost that pits remote from the big centres of consumption are very badly hit. It is these that are cutting the prices so severely. Even the more favourably placed collieries, which have been comparatively well employed, are now retarding the rate of output. More contracts for gas coal supplies over the coming year have been fixed up. Some of the undertakings are attracted by the expedient of balancing the arrears which have to be made up on current contracts with the low-priced spot lots that are being offered; but the question of storage presents a formidable obstacle. Generally "safety first" is the ruling factor. The market continues over-supplied with both gas coke and furnace coke, with the inevitable effect on values.

CURRENT SALES OF GAS PRODUCTS.

The London Market for Tar, Tar Products, and Sulphate.

London, *May* 25.

Pitch is nominal at 41s. to 42s. per ton. There is a certain amount of inquiry developing for next season's shipment, but makers are disinclined to sell at present low levels.

In the meantime chief interest is concentrated on road tar, which is being delivered in large quantities.

There is more inquiry for creosote, and the price is steady at about 7d. to 7¼d. per gallon net and naked at works.

Pure benzole and pure toluole remain unchanged at about 1s. 11d. to 2s. per gallon.

Solvent naphtha is firm at 1s. 8d. to 1s. 9d. per gallon for 95-160 quality.

Tar Products in the Provinces.

May 25.

Tar products markets are generally unchanged and quiet, and there is very little inquiry for either prompt or forward delivery. So far as pitch is concerned, shipments appear to have ceased for this season. As regards business for next season, prices are so low that there is no inducement to manufacturers on this side to sell. So far as buyers on the Continent are concerned, they appear to be quite willing to wait unless they can get on at something like the equivalent of 40s. a ton f.o.b.

Creosote continues quiet; but there is a steady demand, and it is generally thought that some improvement in price will take place when the export demand improves, which it is expected to do about the turn of the half-year.

Water-white products are steady, and there is still a good demand for solvent naphtha.

Crude carbolic and cresylic continue dull, and there is little or no business passing.

The average values for gas-works products during last week were: Gas-works coal-tar, 26s. 3d. to 31s. 3d. Pitch, East Coast, 40s. to 41s. f.o.b. West Coast—Manchester, 35s. to 36s.; Liverpool, 36s. to 37s.; Clyde, 39s. to 40s.; Benzole, 90 p.ct., North, 1s. 7½d. to 1s. 8½d.; crude, 65 p.ct. at 120° C., 11d. to 1s. 1d., naked at makers' works; 50-90 p.ct., naked, North, 1s. 7½d. to 1s. 8½d. Toluole, naked, North, 1s. 6½d. to 1s. 7½d., nominal. Coal-tar crude naphtha, in bulk, North, 7½d. to 8½d. Solvent naphtha, naked, North, 1s. 5d. to 1s. 6d. Heavy naphtha, North, 1s. to 1s. 2d. Creosote, in bulk, North, liquid, 5⅞d. to 6d.; salty, 5⅝d. to 5⅞d.; Scotland, 5½d. to 5¾d. Heavy oils, in bulk, North, 6½d. to 7d. Carbolic acid, 1s. 5d. to 1s. 6d. prompt. Naphthalene, £11 to £14; salts, £4 to £5, bags included. Anthracene, "A" quality 2½d. per minimum 40 p.ct., purely nominal; "B" unsaleable.

RATING AND VALUATION.

The New Bill.

The Government scheme for the amendment and simplification of the law relating to rating and valuation has recently been issued. Naturally, in view of the complexity of the subjects dealt with, the measure is somewhat technical in character. It consists of seventy-eight clauses and nine schedules.

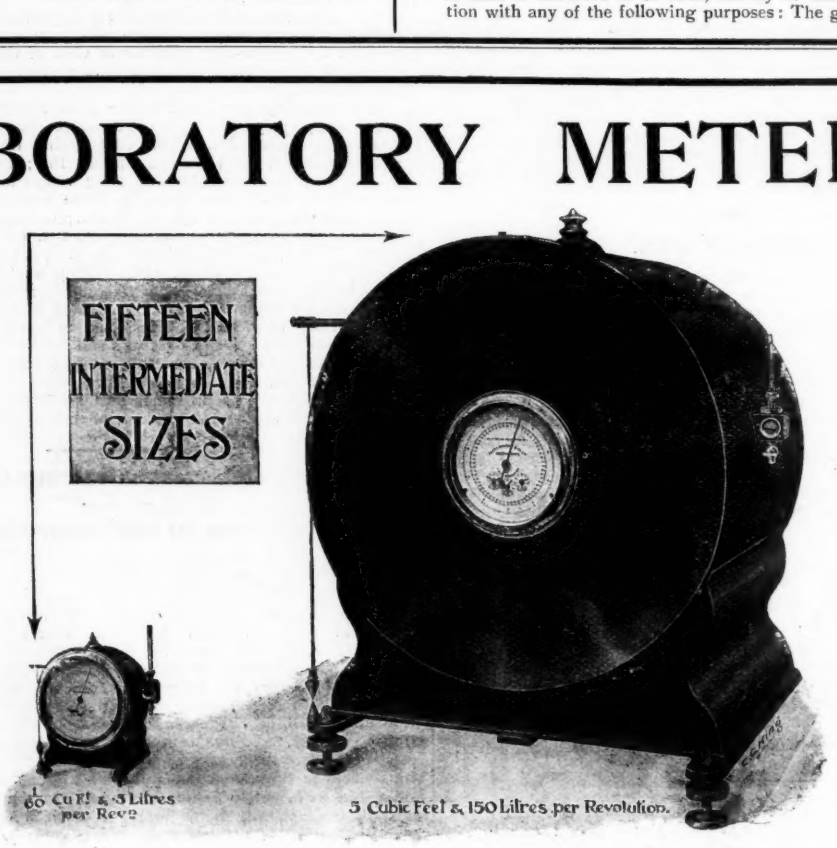
The main objects of the Bill are the simplification and improvement of the administrative machinery of rating and valuation and the removal of various anomalies; the substitution of a single valuation for the separate valuations at present required for purposes of rating and taxation; and the promotion of uniformity of valuation as a condition precedent to any comprehensive review of the system of local taxation and Exchequer grants. Parochial rating is to be abolished; the rating functions of overseers are to be transferred to town councils and district councils, and boroughs and urban and rural districts substituted for parishes as rating areas. The appointment of overseers will be discontinued, and all paid parochial officers will be transferred to the new rating authorities. Rates are to be consolidated. In boroughs and urban districts a "general rate" will take the place of the separate rates now levied; in rural districts there will be a "general rate" levied by the rural district council over the whole district in place of the poor rate, and a special rate levied on each parish chargeable with special expenses under the Public Health Acts, or lighting expenses under the Lighting Act. Various amendments are proposed for the simplification of procedure in regard to the levying, operation, incidence, collection, and compounding of rates.

As to the single valuation, it is proposed that, as is already the case in the Metropolis, the values should be the basis for the assessment of county as well as local rates, and that the gross values appearing in the valuation lists should be adopted for the purposes of Schedule A of the income-tax. Inland Revenue officers will accordingly be concerned in the preparation and revision of the valuation lists. It is proposed that valuation areas should consist of (*a*) county boroughs, and (*b*) county districts or combinations of such districts, and that there should be one assessment committee for each area. Following the London precedent, the valuation list is to be renewed every five years.

In accordance with the recommendations of the Inter-Departmental Committee whose report was issued in February, the Bill proposes important changes in the matter of the rating of machinery. It is provided that the following classes of machinery and plant are to be deemed to be part of the hereditament:

1. Machinery and plant (together with the shafting, pipes, cables, wires, and other appliances and structures accessory thereto) which is used or intended to be used, mainly or exclusively, in connection with any of the following purposes: The generating, storing,

LABORATORY METERS.



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transforming, or transmitting of power, heating, cooling, ventilating, lighting, draining, or the supplying of water to the land or buildings of which the hereditament consists, or any part of that land or those buildings, or the protecting of the hereditament from fire.

2. Lifts and elevators.
3. Railway and tramway lines and tracks.
4. Any plant or any combination of plant and machinery which is, or is of the nature of, a building or structure, including gasholders, blast furnaces, coke ovens, tar-distilling plant, cupolas, water towers with tanks.

With the above exceptions, no account is to be taken of the value of any plant or machinery, which will therefore be exempted from rating.

In the Bill the gas industry will find several matters which will have to receive the consideration and action of its central organizations.

Langley Mill Gas-Works Extension.

The Langley Mill and Heanor Gas Company, Ltd., are installing another large gasholder at their Langley Mill Works. This is to be erected close to the one installed a few years ago, and, like it, will have a capacity of 260,000 c.ft. The work of construction is being carried out by Messrs. Robert Dempster, Ltd., of Elland; and for the riveting special hydraulic plant has been laid down. An interesting ceremony took place recently, when Mrs. Andrews, wife of Mr. H. J. Andrews, Managing Director, put in the first rivet, and was presented with a gold-mounted umbrella as a memento by Mr. J. Garside, the Engineer-in-Charge.

Rotherham Corporation Gas Department.

The annual report of Mr. J. S. Naylor, the Engineer and General Manager, for the year ended March 31, shows that the quantity of coal carbonized during the year was 9291 tons, as against 6847 tons last year. The gas made was 124,628,000 c.ft. (623,140 therms), compared with 94,642,000 c.ft. (473,210 therms) last year—an increase of 29,986,000 c.ft. The quantity of gas purchased was 226,401,100 c.ft.—a decrease of 16,573,000 c.ft. The quantity of gas sold was 322,448,000 c.ft., an increase of 12,766,000 c.ft., or 4·12 p.ct. on last year's figures. This is mainly due to the increased demand for gas fires and cookers. The gross profit was £14,765, as against £16,956 last year. The net profit, after allowing for interest, redemption instalments, and contributions to sinking fund, amounts to £2459, compared with £4797. Owing to the reduction in the price of gas (4d. per 1000 c.ft.), which took effect at the beginning of last year, the saving to the consumers was £5374.

Sale of Nuneaton Gas Shares.—At the Peacock Hotel, Nuneaton, on May 19, Messrs. T. J. Chinn & Son sold by auction a number of shares in the Nuneaton Gas Company, the prices realized being as follows: 60 original £8 shares (7½ p.ct.), £6 10s. each; 50 new £8 shares (5¼ p.ct.), £4 10s. and £4 15s. each; and £100 of debentures, at £67.

The half-yearly report of the Matlock Bath gas undertaking shows a gross profit of £260, but a net loss of £363.

The Dewsbury Corporation Gas Department have made a net profit of over £7000 during the past year, despite the depressed condition of the residuals market.

A proposal was made at a meeting of the Brigg Urban Council that the Gas Committee consider reducing the price of gas. It was stated that, as new purifiers would have to be purchased, this concession could not be made.

In his annual report, Dr. W. A. Daley, Medical Officer of Health for Blackburn, refers to the fact that the average deposit of soot in the centre of the town is 48 metric tons per month, and states that an increased use of gas for power, lighting, and heating is necessary.

The Coventry Gas Committee have recommended to the City Council "that a scheme for the treatment of the effluent from the Foleshill Gas-Works be approved at an estimated cost of £15,000, to be paid from the reserve fund; and that an increased scale of charges be approved."

A dinner was given last Friday, at the Veritas Mantle Works, Wandsworth, by the Directors of Messrs. Falk, Stadelmann & Co., Ltd., to celebrate the winning by the Veritas Football Club First Team of a cup and medals for Group A, and a cup for the League Championship, Balham and District League, and by the Second Team of the runners-up certificate for Group C.

At the Ellesmere Port Gas-Works, on May 20, Mr. W.O. Parkinson and Mr. W. Stockton set in motion two engines for pumping gas into the holders at Little Sutton. The Ellesmere Port and Whitby Urban Council recently acquired the Sutton and Hooton Gas-Works, and the areas now supplied are Little Sutton, Great Sutton, Childer Thornton, Hooton, Eastham, and Willaston.

A verdict of "Accidental death" was returned at an inquest at Bristol on Thursday on Robert William Pratt, a stoker at the Thornbury Gas-Works, who died in the Royal Infirmary following an accident at the works. Evidence was given by Mr. Charles William Buckingham (the Manager) that the accident happened in the purifier house, where there were three boxes with lids removed by a travelling crane. To operate the crane, workmen had to get on the top of a box, and push it along. Witness heard a noise, and on going to investigate what had caused it, found that the crane had fallen over, and that Pratt was lying on his back between two of the boxes. Witness believed the accident was caused by deceased having pulled, instead of pushed, the crane, and not doing it squarely made it topple over. He had been instructed as to how to use it. Witness admitted that there was no first-aid equipment at the works; and in returning their verdict, the Jury expressed the opinion that such appliances should have been provided.

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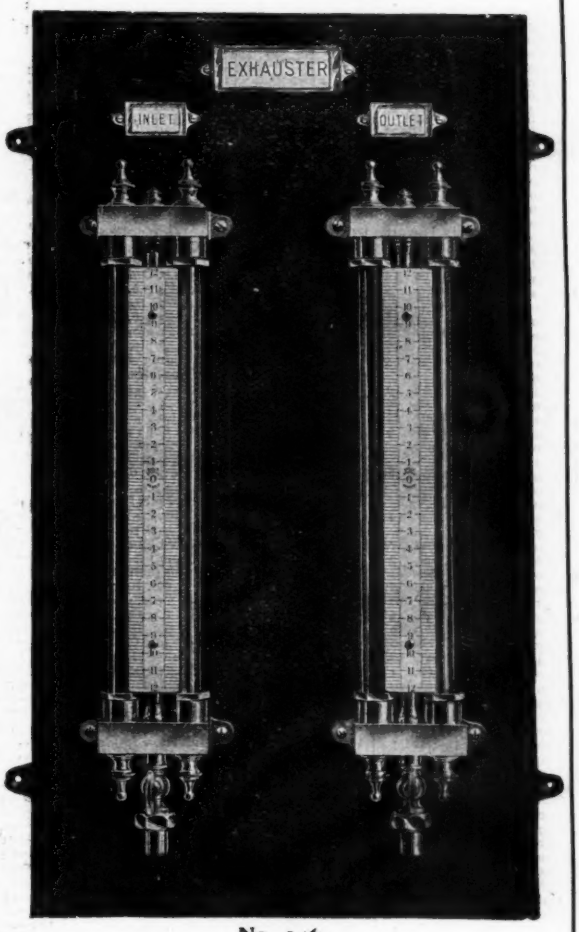

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STOCK MARKET REPORT.

On the Exchange last week there were signs that business was a little more active, influenced doubtless by the improved monetary outlook. As we anticipated, the London County Council issue did not attract the public, and 75 p.c. was left with the underwriters. Frantic efforts are now being made to unload both the Council and the New Zealand loans, and several boosting paragraphs have appeared in the financial Press. Quite another proposition is the New South Wales issue of £6,500,000 5 p.c. loan at 98½ p.c., which was underwritten on Friday last, and for which it is expected there will be an enormous demand. Gilt-edged stocks were firmer. The result of the miners' conference has had an improving influence on the Home Rail Market, although the reduced traffic returns are not encouraging.

On the whole Industrials were quiet. The proposed modification of the Silk Duties brought about a recovery in Courtaulds, British Celanese, and Grouts. Iron and Steel issues were stimulated by the excellent report of the Tata Company, and Armstrongs improved on increased business reports.

The Gas Market was distinctly disappointing. It was thought that prices had steadied; but, as will be seen by the Table, all the changes in the quotations were on the downward grade. Ignoring the big *ex* div. drop of 27 points in the Imperial Continental Capital Stock, the principal reductions were the Brentford "A" and "B" stocks, which are now quoted at 95-100, a drop of 2½ points, the South Suburban 5 p.c. ordinary at 95-98, a drop of 3 points, and Tynemouth 74-76, a drop of 3 points. The fall in the South Suburban stock is doubtless due to the proximity of the announcement of a reduced standard price.

An issue by tender of £30,000 6 p.c. Irredeemable Preference Stock at a minimum of par is announced by the Lea Bridge District Gas Company. There should be a good demand for this stock.

The following transactions were recorded during the week:

On Monday, Bombay 5¼ *ex* div., Brentford "A" 95, European 7, Gas Light and Coke 83¼, 83½, 83⅝, 83¾, 84, 84⅛, 4 p.ct. preference 78½, 3 p.ct. debenture 60⅛, Imperial Continental 182½, 183¾, Ottoman 2s. 6d., Primitiva 9s. 3d., 9s. 6d., South Metropolitan 93⅛, 93⅜, 93⅝, 93¾, 6½ p.ct. debenture 103, South Suburban 5 p.ct. debenture 98, 98½, Tottenham "B" 96½. Supplementary prices, Ottoman 7 p.ct. preference 5s., Tottenham 5½ p.ct. preference 104½.

On Tuesday, Alliance and Dublin 66⅛, 66¼, 66½, 4 p.ct. debenture 66⅛, 66½, Brentford "A" 95, British 4 p.ct. debenture 76, Commercial 4 p.ct. 87½, Continental Union 35¼, 36, Gas Light and Coke 83¼, 83½, 83⅝, 83¾, 84, 84⅛, 4 p.ct. preference 78½, 79, 3 p.ct. debenture 60⅛, 60⅜, 61⅛, Imperial Continental 182½, Primitiva 9s., 9s. 1½d., 9s. 6d., 4 p.ct. debenture (1911) 64⅜, 65¼, South Metropolitan 93½, Tuscan 22s. 6d. Supplementary prices, Wandsworth 3½ p.ct. new 95, 5 p.ct. preference 95, 4 p.ct. debenture 77.

On Wednesday, Bournemouth "B" 12⅛, Brentford 4 p.ct. debenture 78, 79, British 112, 112½, Commercial 87½, Continental Union 36, Croydon maximum dividend 82½, 83½, Gas Light and Coke 83¼, 84, 84½, 84¼, 3½ p.ct. maximum 63¼, 63½, 64½, 4 p.ct. preference 79½, Imperial Continental 182, 3½ p.ct. debenture 73, 73½, Primitiva 9s. 3d., 9s. 6d., 4 p.ct. debenture (1911) 64⅜, South Metropolitan 93½, 94, Tottenham "B" 97. Supplementary prices, Tottenham 5½ p.ct. preference 104½, 104½.

On Thursday, Bournemouth "B" 12⅛, Brentford "A" 95½, "B" 95, British 110, 111, Continental Union 36, Gas Light and Coke 83⅜, 84⅛, 84⅜, 3½ p.ct. maximum 63¾, 4 p.ct. preference 79, 79¼, Hastings and St. Leonards 3½ p.ct. converted 76, Imperial Continental 155, 155½ *ex* div., Primitiva 9s. 3d., 9s. 6d., 4 p.ct. debentures 80¾, 81, 4 p.ct. debenture (1911) 65¼, South Suburban 95. Supplementary prices, Wandsworth 4 p.ct. debenture 79.

On Friday, Alliance and Dublin 64 13/16, 66⅛, 66½, Gas Light and Coke 83½, 83⅜, 84¼, 84⅜, 3½ p.ct. maximum 64, 4 p.ct. preference 79¾, 3 p.ct. debenture 61⅛, Imperial Continental 155, 155½, 156½, *ex* div., Primitiva 9s. 6d., 4 p.ct. debenture (1911) 65¼, South Metropolitan 93½, Tottenham "B" 97. Supplementary prices, Wandsworth 3½ p.ct. new 95.

The success of the restoration of the Gold Standard seems to be now assured, and the fears of an increased Bank Rate have receded into the future. Conditions in the short loan market are extremely good, and the position will possibly become easier by the War Loan interest distribution at the end of the month. Balances were available at the end of the week at 3½ p.ct. The Treasury Bill average rate dropped nearly 4s. on the week to £4 9s. 5·9d. p.ct. This rate is still very high, and it is anticipated that ensuing weeks will show an improvement from the Government's point of view.

On the Foreign Exchange Market the dollar-sterling weakened to 4.86 1/16. Both francs and lire were lower in value. The Paris cheque closed at 94.77½, Belgian francs at 97.27½, and Italian lire at 120 3/16. Neutral exchanges generally moved in favour of this country.

The price of gold remained unaltered at 84s. 11½d., and silver on Chinese orders rose 1/16d. to 31½d. per oz.

The Bank Rate is 5 p.ct., to which it was raised from 4 p.ct. on March 5. Bankers' deposit rates are 3 p.ct. The deposit rates of the discount houses are 3 p.ct. at call and 3½ p.ct. at notice.

Issue.	Share.	When ex-Dividend.	Dividends. Prev. Hf.Yr.	Dividends. Last Hf. Yr.	NAME;	Quotations. May 22.	Rise + or Fall − on Week.	Transactions Lowest and Highest Prices.
£			% p.a.	% p.a.				
171,978	Stk.	Feb. 5	5	5	Aldershot 5 p.c. max. C.	78—81	..	..
295,402	"	"	4	4	Do. 4 p.c. Pref.	71—76	..	..
1,351,868	"	Apl. 2	6½	6½	Alliance & Dublin Ord.	65—70	−1	64 13/16—66⅛
374,000	"	Jan. 8	4	4	Do. 4 p.c. Deb.	63—68	..	66¼—66⅜
300,000	5	May 7	8	8	Bombay, Ltd.	4⅛—5⅛	..	5⅛
170,000	10	Mar. 5	8½	8½	Bournemouth 5 p.c.	12—13	..	..
425,050	10	"	7	7	Do. B 7 p.c.	12½—12⅝	..	12½—12⅛
150,000	10	"	6	6	Do. Pref. 6 p.c.	11—12	..	..
50,000	Stk.	Jan. 8	3	3	Do. 3 p.c. Deb.	56—59	..	..
162,025	"	"	4	4	Do. 4 p.c. Deb.	78—81	..	..
992,045	"	Mar. 5	6 5/16	6 5/16	Brentford A Con.	95—100	−2½	95—95½
990,500	"	"	6⅛	6⅛	Do. B New	95—100	−2½	95
76,000	"	"	5	5	Do. 5 p.c. Pref.	95—98	..	..
306,690	"	Dec. 18	4	4	Do. 4 p.c. Deb.	76—81	..	78—79
181,337	"	"	6	6	Do. 6 p.c. Rich. Red. Deb.	100—105	..	..
214,740	"	Mar. 5	11½	12½	Brighton & Hove Orig.	165—170	..	..
344,200	"	"	8½	9½	Do. A Ord.	122—125	..	..
1,387,500	"	Feb. 19	5	5	Bristol 5 p.c. max.	96½—97½*a*	..	..
855,000	"	Mar. 19	8	7	British Ord.	110—115	..	110—112½
100,000	"	Dec. 18	7	7	Do. 7 p.c. Pref.	123—128	..	..
120,000	"	"	4	4	Do. 4 p.c. Red. Deb.	72—77	..	76
100,000	10	May 21	6	8	Cape Town, Ltd.	6½—7½*	−⅛	..
100,000	10	Apl. 23	4½	4½	Do. 4½ p.c. Pref.	6—7	..	..
150,000	Stk.	Dec. 18	4½	4½	Do. 4½ p.c. Deb.	71—76	..	..
626,860	"	Feb. 19	6	6	Cardiff Con. Ord.	101—104	..	..
237,860	"	Jan. 8	7½	7½	Do. 7½ p.c. Red. Deb.	104—107	..	..
157,150	"	Feb. 19	5	6½	Chester 5 p.c. Ord.	89½—94½*b*	..	..
1,513,280	"	Mar. 5	6	5/14/8	Commercial 4 p.c. Cap.	86—89	..	87½—87½
560,000	"	"	6	5⅔	Do. 3½ p.c. Cap.	86—89	..	..
475,000	"	Dec. 18	3	3	Do. 3 p.c. Deb.	57—60	..	..
800,000	"	14 Jan. 15	—	—	Continental Union, Ltd.	35—40	..	35½—36
200,000	"	Dec. 18	7	7	Do. 7 p.c. Pref.	88—92	..	..
660,000	"	Mar. 5	6½	6½	Croydon sliding scale	98—102	..	..
284,975	"	"	5	5	Do. max. div.	83—86	..	82½—83½
492,270	"	Feb. 19	6	9	Derby Con.	110—112*c*	..	..
55,000	"	Jan. 8	4	4	Do. Deb.	74—76*c*	..	..
1,002,180	I	Jan. 22	6	4	European, Ltd.	7—8	..	..
16,460,070	Stk	Feb. 19	5½	5½	Gas Light & Coke 4 p.c. Ord.	83—85	..	83½—84½
2,600,000	"	"	3½	3½	Do. 3½ p.c. max.	62—65	..	63½—64½
4,062,235	"	"	4	4	Do. 4 p.c. Con. Pref.	78—80	..	78½—79½
4,761,930	"	Dec. 18	3	3	Do. 3 p.c. Con. Deb.	59—62	..	60½—61½
130,000	"	—	10	10	Do. 10 p.c. Bonds	..	..	..
42,000	"	—	7½	7½	Do. 7½ p.c. Ilford Deb.	..	..	..
82,500	"	Mar. 19	6½	6½	Hastings & St. L. 5 p.c. Conv.	92—97	..	..
258,740	"	"	5½	5½	Do. 3½ p.c. Conv.	73—78	..	76
70,000	10	May 7	10	10	Hongkong & China, Ltd.	15½—16½	..	..
86,600	Stk.	Mar. 5	10	10	Hornsey 7 p.c.	136—141	..	..
1,976,000	"	May 21	10	59	Imperial Continental Cap.	153—158*	−27	155—183½
263,950	"	Feb. 5	3½	3½	Do. 3½ p.c. Red. Deb.	71—74	..	73—73½
235,242	"	Mar. 19	6½	6½	Lea Bridge 5 p.c. Ord.	96—101	..	..
2,127,340	"	Feb. 19	5½	5½	Liverpool 5 p.c. Ord.	89—90*b*	−½	..
600,000	"	Mar. 19	7	7	Do. 7 p.c. Red. Pref.	103½—104½*b*	..	..
165,736	"	Feb. 19	9	8	Maidstone 5 p.c. Cap.	122—132	..	..
63,480	"	Dec. 18	3	3	Do. 3 p.c. Deb.	53—58	−1	..
75,000	5	Dec. 4	7	5	Malta & Mediterranean	4½—4⅝	..	..
541,920	Stk.	Nov. 20	4	4	Montevideo, Ltd.	66—70	−1½	..
2,061,315	"	Mar. 5	5	5	Newcastle & Gateshead Con.	77½—78*d*	..	..
300,929	"	"	4	4	Do. 4 p.c. Pref.	73—74*d*	..	..
529,705	"	Dec. 18	3½	3½	Do. 3½ p.c. Deb.	68½—69½*d*	..	..
15,000	"	Mar. 5	11	12	North Middlesex 10 p.c.	..	..	..
75,940	"	"	7 7/16	8⅜	Do. 7 p.c.	..	..	..
300,000	Stk.	May 7	9	7	Oriental, Ltd.	100—105	..	..
188,120	"	Jan. 8	7½	7½	Plym'th & Ston'house 5 p.c.	109—114	..	..
60,000	50	Mar. 5	13	14	Portsea Island B	96—99	..	..
100,000	50	"	12	13	Do. C	93—98	..	..
2,289,909	1	—	—	—	Primitiva Ord.	9/—10/—	..	9/—9/6
311,100	100	Dec. 1	4	4	Do. 4 p.c. Red. Deb.	79—81	..	80½—81
600,000	Stk.	Jan. 22	4	4	Do. 4 p.c. Red. Deb. 1911	64—66	..	64⅜—65½
220,335	"	Dec. 18	4	4	Do. B. Aires 4 p.c. Rd. Db.	65—67	..	..
321,670	"	"	4	4	Do. R'r P'te 4 p.c. Rd. Db.	65—67	..	..
150,000	10	Mar. 19	6	6	San Paulo 6 p.c. Pref.	7⅛—8⅛	..	..
125,000	50	Jan. 2	5	5	Do. 5 p.c. Red. Deb.	43—46	..	..
270,000	Stk.	Mar. 19	5½	5½	Sheffield A	103—105*e*	..	..
419,968	"	"	5½	5½	Do. B	103—105*e*	..	..
1,047,000	"	"	5½	5½	Do. C	103—105*e*	..	..
90,000	10	Oct. 23	8	6	South African	7—9	..	..
6,609,895	Stk.	Feb 19	5	6½	South Met. Ord.	93—95	..	93½—94
1,895,445	"	Jan. 8	3	3	Do. 3 p.c. Deb.	59—62	..	..
734,000	"	Mar. 5	6½	6½	Do. 6½ p.c. Red. Deb.	102½—104½	..	103
91,500	"	Mar. 5	8½	8½	South Shields Con.	135—136*d*	..	..
1,187,795	"	Feb. 19	6½	6½	South Suburban Ord. 5 p.c.	95—98	−3	95
368,837	"	Dec. 18	5	5	Do. 5 p.c. Deb.	97—100	..	98—98½
647,740	"	May 7	5	5	South'mpt'n Ord. 5 p.c. max.	81—84	..	..
121,275	"	Dec. 18	4	4	Do. 4 p.c. Deb.	72—77	..	..
250,000	"	Mar. 5	7	7	Swansea 7 p.c. Red. Pref.	102—104	..	..
200,000	"	Dec. 18	6½	6½	Do. 6½ p.c. Red. Deb.	103—105	..	..
120,000	"	Feb. 19	8	8	Tottenham District A 5 p.c.	116—119	..	..
882,275	"	"	6½	6½	Do. B 3½ p.c.	95—98	−1	96½—97
181,255	"	Dec. 18	4	4	Do. 4 p.c. Deb.	77—80	..	..
258,251	"	Mar. 19	5	5	Tynemouth Con. and New	74—76*d*	−3	..
197,294	"	Feb. 19	6½	6½	Uxbridge, Maidenhead, & Wycombe 5 p.c.	95—100	..	..
88,330	"	"	5	5	Do. 5 p.c. pref.	95—100	..	..
91,800	"	"	—	6½	Do. 5 p.c. Maidenh'd	90—95	..	..
					Wandsworth, Wimbledon, and Epsom—			
30,000	"	Mar. 5	9½	9½	Wandsworth A 5 p.c.	130—135	..	..
255,636	"	"	7½	7½	Do. B 3½ p.c.	110—115	..	..
392,955	"	"	6/9/6	6/9/6	Do. C and New	95—100	..	95
354,000	"	"	7⅝	7½	Wimbledon 5 p.c.	105—110	..	..
98,000	"	"	7⅝	7½	Epsom 5 p.c.	112—117	..	..
88,416	"	Dec. 18	3	3	3 p.c. Deb.	57—60	..	..

Quotations at:—*a*,—Bristol, *b*,—Liverpool, *c*,—Nottingham. *d*,—Newcastle, *e*,—Sheffield. * Ex; div.